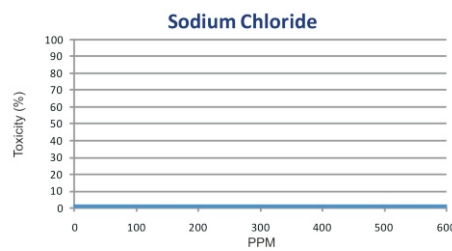
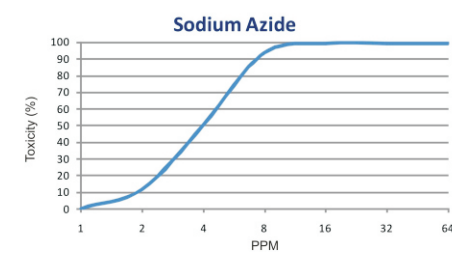
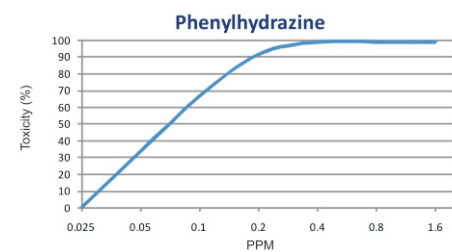
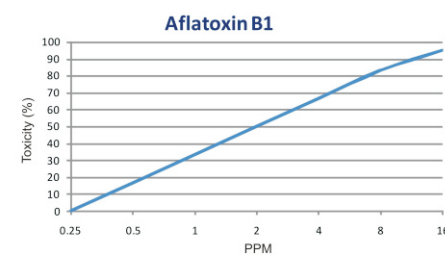
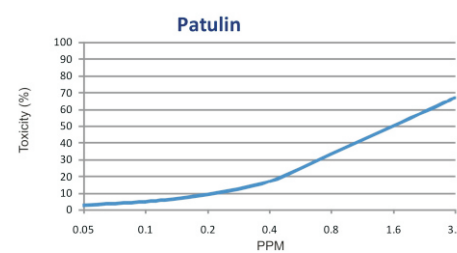
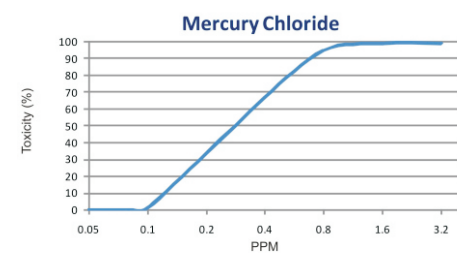
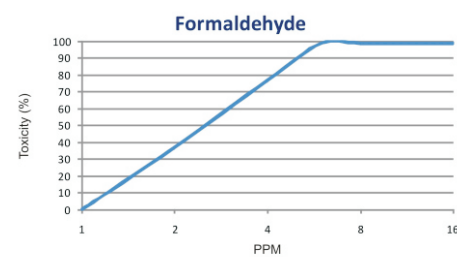


**EXAMPLES OF TOXICANTS TESTED BY THE TOXI-CHROMOTEST**

Toxic response of bacteria is depicted in graphic form, relating percentage of toxicity to concentration of various substances as evident by an inhibition of  $\beta$ -galactosidase production.



Measuring the **Health**  
of the **Environment**



# TOXI-CHROMOTEST™

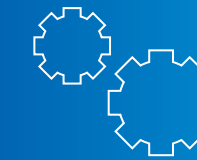
## THE PRINCIPLES OF THE TOXI-CHROMOTEST

The Toxi-ChromoTest is a bacterial assay for the detection of toxicity. It is based on the ability of toxic materials and antibiotics to inhibit *de novo* synthesis of the inducible enzyme  $\beta$ -galactosidase in a specially designed strain of *E. coli*. This bacterial strain is highly sensitive to a wide spectrum of toxic substances such as pesticides, mycotoxins and heavy metals.

The sensitivity of the Toxi-ChromoTest is enhanced by exposing the bacteria to stressing conditions prior to their incorporation into the test kits.

The stressed bacteria are mixed with a cocktail containing essential factors required for the recovery of the bacteria from the stress conditions and a specific inducer for the enzyme  $\beta$ -galactosidase. The ability of the cells to synthesize the enzyme depends on their ability to recover from the stress. The activity of the enzyme is detected by reacting it with a chromogenic substrate, resulting in a visible, easily detectable colour formation which can be measured visually or with a spectrophotometer.

Toxic materials interfere with the recovery of most metabolic functions and thus with the synthesis of the enzyme, resulting in a decreased colour development.



## CUSTOM SOLUTIONS

At EBPI we strive to meet the demands of our clients and their changing requirements.

For further information:

please contact us at

[www.BioToxicity.com](http://www.BioToxicity.com)

## WHY DO WE NEED TESTS FOR TOXICITY

With the increased industrialization of the civilized world, numerous chemicals are being introduced and used, and many of them pose problems with their release into the environment, affecting both ecosystems and public health. For this reason many assays, chemical and biological, have been developed to meet the demand of screening for toxic substances. Unlike some other tests, the Toxi-ChromoTest biological assay detects active toxins and do not, usually, require a lengthy process of sample preparation.

# TOXI-CHROMOPAD™

## THE SEDIMENT TOXI-CHROMO TEST

The sediment Toxi-ChromoPad is a screening tool to measure acute toxicity in freshwater sediments, sludge or other solid waste material. The kit is rapid, cost effective and allows easy testing on-site. The kit quickly identifies high-priority samples for further analysis and can quickly contribute to a weight of evidence confirming success of remedial actions.

The test is based on the novel mutant of *E. coli* which is also used in the Toxi-ChromoTest kit. The procedure allows the bacteria to grow in direct contact with the toxicants in the sample. After a short incubation period (two hours), the sediment is placed onto a chromogenic chromopad. If the sample is toxic, no colour will develop.

## THE ADVANTAGES OF BACTERIAL TESTS.

In comparison with higher organisms, bacteria have similar biopathways, possess similar semi-permeable membranes, and are therefore vulnerable to toxic substances which either affect the membrane or biosynthetic pathways.



In addition, bacteria have the advantage of rapid growth and enable the use of very large populations. Their cultivation is economical and one can use very small sample volumes in tests. Moreover, they allow for easy standardization of the technique.

The Toxi-ChromoTest Kit is:

- Easy to perform
- Rapid (less than 2 hours)
- Suitable for performance under field conditions
- Sensitive to low concentrations of toxic materials

Each Toxi-ChromoTest kit contains 3 plates, each with 96 test points, and all the materials required to perform the assay.



## HIGHSCHOOL SOLUTIONS

Due to the positive feedback at the University and College levels, EBPI has in conjunction with Centennial College developed a synthetic version of the Toxi-ChromoTest kit for the highschool classroom setting. The kit includes teacher as well as student manuals and real life case studies.