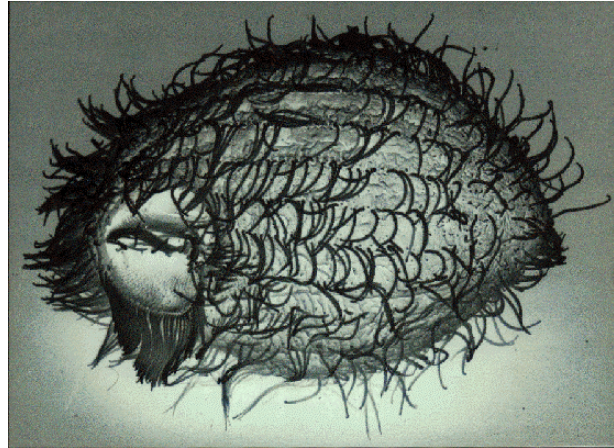


# PROTOXKIT F™

## *MICROBIOTESTS*

With the ciliate  
protozoan  
*Tetrahymena*  
*thermophila*



**Cost-effective,  
culture/maintenance free\*  
bioassays**

*\*Live test organisms are included in the kits in “steady state” condition , for use “on demand” during several months*



Each Toxkit contains  
all the materials for  
performance of 6  
complete bioassays

# PROTOXKIT F

## 24h Growth Inhibition Microbiotest

for Toxicity Screening of Pure Compounds - Effluents -  
Sediments - Surface and Ground Waters - Wastewaters

**Each PROTOXKIT F contains all the materials necessary to perform six chronic (multigeneration) toxicity tests with the freshwater protozoan ciliate\* *Tetrahymena thermophila*.**

\* Ciliates are a very important component of benthic microfauna communities and play a key role in the recycling of organic matter. They are also, next to bacteria, the second most important group of biota in activated sludge of wastewater treatment plants.

**Easy to follow instructions and detailed illustrations are provided in the kit for the conduct of range-finding and definitive acute tests, with calculation of the 24h EC50. The test organisms are included in the kits in a « steady state » condition in a very specific medium, which allows for their survival for several months at room temperature without prejudice to their good physiological condition.**

### **Test principle and test criterion**

- The assay is based on the measurement of the turnover of food substrate into ciliate biomass by optical density (OD) readings.
- Inhibited culture growth under toxic stress is reflected by remaining turbidity of the food suspension (and hence higher OD) in comparison to the control.
- Mean growth inhibition after 24h exposure at 30°C is determined and expressed as 24hEC50. NOEC and LOEC values can be calculated with specific data treatment programmes.

### **Reproducibility**

- Uniform axenic stock cultures of high quality produced in strictly controlled conditions preclude variability associated with maintenance of live stocks in different laboratories.
- The PROTOXKIT F uses standard disposable spectrophotometric cells as test containers, with direct measurement of the OD of the substrate in the cells.
- A Quality Control Test with a reference chemical is described in detail, for accuracy and reproducibility check.

### **Cost-Effectiveness**

- Tests can be started from the stock culture vial, eliminating the need and the costs of continuous culturing and maintenance of test organisms.
- Minimal equipment needed for test performance: colorimeter or spectrophotometer - small incubator - conventional laboratory glassware.

- Shelf-life of stock culture guaranteed for several months when stored properly, reducing test scheduling constraints.

### **Contents**

- Stock culture vial, sterile syringes for the transfer of the ciliates, tubes with substrate and reconstitution medium, stock dilution and test spectrophotometric cells and cell holders.
- Detailed Standard Operational Procedure brochure, abbreviated Bench Protocol, data scoring sheets and graphical EC50 calculation sheets.
- Specification sheet with batch number of the ciliate stock and the media.

### **User-Friendliness**

- Bioassays can be started anytime immediately from the stock culture.
- Test performance only implies simple photometric OD readings at the start and at the end of the test.
- Total performance time of the assay approximately 1 hour.
- A floppy disc for easy Toxkit data treatment can be obtained on demand.

### **Sensitivity**

- Comparable to that of other ciliates in activated sludges and hence good indicator for toxic hazard in influents of wastewater treatment plants.
- Compares favorably with that of human and animal cell lines pointing to the potential of the PROTOXKIT F as a screening test in human toxicology.

### **Validation**

- Growth inhibition NOEC's determined with PROTOXKIT F tests are ecologically meaningful thresholds for the protection of protozoan microfauna in benthic communities and the well-functioning of the ciliate component in activated sludges.
- Very large data base available on many chemicals for the related species *Tetrahymena pyriformis*.
- Test Guideline for *Tetrahymena* bioassay under priority development in OECD.

*A list of selected references is available upon request*

**N.B. All the materials included in the PROTOXKIT are also available separately.**