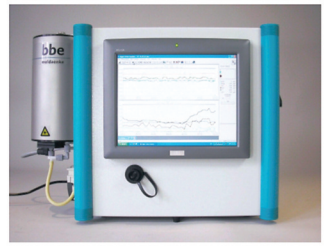
The Measurement of Chlorophyll *a* from Phytoplankton using bbe Fluorometers

FluoroProbe III
total chlorophyll analysis and algae class determination

The common way to carry out measurements for chlorophyll used to be to collect samples and use extractive analysis in a laboratory, or take large, very bulky equipment to the field. Extractive analytical methods, though highly accurate, are usually time-consuming and require an experienced analyst.

This has now become much more convenient via the use of the a submersible depth profiler: the **bbe FluoroProbe**. It is quick and efficient to use, and enables spot sampling in remote areas, uses technology similar to that used by common fluorometers, but is more versatile, due to its application as an instrument for the advanced analysis of different algae classes. It is designed to estimate phytoplankton concentrations by detecting the fluorescence from chlorophyll in situ, at different depths and in real time. The FluoroProbe can be converted to a **BenthoFluor** using two different adapters or used in the lab using the **Workstation 25**.

The principle of fluorescence detection is used in all bbe fluorometers e.g. for online measurement using the **AlgaeOnlineAnalyser** or **AlgaeGuard,** or laboratory samples using the **AlgaeLabAnalyser**, or rapid detection of cyanobacteria in situ using the **AlgaeTorch**.

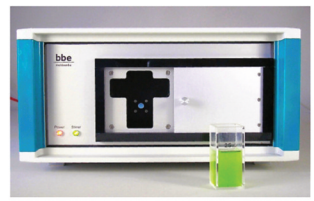


AlgaeOnlineAnalyser
flow-through instrument, automatic cleaning device

BenthoFluor
analysis of benthic algae, can be used as a FluoroProbe

AlgaeTorch
handheld, total chlorophyll and cyanobacteria

AlgaeGuard
easy-to-use, online, algae class determination



AlgaeLabAnalyser
laboratory or field work with discrete samples (25 ml)

Online Biomonitoring using bbe Toximeters

Exploding numbers of synthesized compounds have led to new challenges in environment assessment during the last few decades. Although analytical methods in sensitivity have drastically improved, for toxicity detection the use of biological systems is inevitable. Here, model organisms act as reliable indicators for harmful agents, e.g. toxins.

Toxicity tests are mainly based on the survival of organisms in the presence of test material. Static toxicity tests based on the survival on test organisms in the presence of test materials permanently expose the organisms to a series of dilutions over 24 or 48 hours. Dynamic tests, in contrast, shorten the test procedure and allow continuous monitoring. The registration of complex behaviour patterns of the organisms further reduces the response time for alarm evaluation. Automatic unmanned surveillance is achieved by use of the unique **bbe** software thus reducing running costs; the instruments are very reliable and require only one or two hours maintenance per week.

***Tox*Protect 64**
fish biomonitor using light barrier detectors

NEW

DaphTox II
video image analysis of daphnid behavioural patterns

Fish Toximeter
video images analysis of daphnid behavioural patterns

Algae Toximeter
algae activity monitor to determine toxicity

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