AlgaeLabAnalyser

The reliable instrument for the laboratory

- Quick & simple chlorophyll measurement with algal class differentiation
- Direct measurement without preparation
Determination of chlorophyll concentrations, algal classes and photosynthetic activity for science and routine analysis

The bbe AlgaeLabAnalyser (ALA) offers the simultaneous determination of chlorophyll concentrations, transmission, and – as an option – the photosynthetic activity of microalgae. Chlorophyll is excited by coloured LEDs and the fluorescence emission is allocated to the different algal classes.

The AlgaeLabAnalyser enables direct measurement without sample preparation by filtration or solvent. The fluorescence signals \( f_0, f, f_m \) are used to calculate the photosynthetic activity applying the Genty parameter method. A yellow substances (FDOM) compensation is also used to exactly calculate the total chlorophyll content. The device is virtually maintenance-free and very simple to operate thus saving both time and money.

### Specifications

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurands</td>
<td>Total chlorophyll [μg chl-a/l], green algae [μg chl-a/l], cyanobacteria [μg chl-a/l], diatoms [μg chl-a/l], cryptophyceae [μg chl-a/l], yellow substances, transmission (at 5 wavelengths), water temperature, photosynthetic activity (Genty) – Option</td>
</tr>
<tr>
<td>Measuring range</td>
<td>0 – 200 μg chl-a/l</td>
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<tr>
<td>Resolution</td>
<td>0.01 μg chl-a/l</td>
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<tr>
<td>Lower detection limit</td>
<td>0.05 μg / l *</td>
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<tr>
<td>Transmission</td>
<td>0 - 100 %, photometry</td>
</tr>
<tr>
<td>Weight</td>
<td>7.5 kg (without computer)</td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>185 x 330 x 350 mm</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Voltage</td>
<td>240 V / 50 Hz; 110 V / 60 Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>10 W</td>
</tr>
<tr>
<td>Temperature</td>
<td>Sample: 0 to 35 °C / Environment: 0 to 40 °C</td>
</tr>
<tr>
<td>Sample volume</td>
<td>25 ml (cuvette)</td>
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<tr>
<td>Interface</td>
<td>RS232</td>
</tr>
<tr>
<td>Software</td>
<td>bbe++ software with database</td>
</tr>
<tr>
<td>Options</td>
<td>Battery pack, 12 V adapter, transport case</td>
</tr>
</tbody>
</table>

* based on lab measurement with cultured algae

### Applications

- Monitoring and assessment of water quality
- Environmental monitoring
- Intake monitoring
- Toxicity testing
- Analysis of contaminated sites
- Monitoring of dams
- Limnological work
- Research and education
Measurements…

- …of chlorophyll-a:
  Performed without sample preparation and therefore much faster than common chlorophyll analysis. The average measuring time is only 1 minute. The results are comparable to HPLC pigment analysis or wet-chemical analysis ($R^2>0.93$).

- …of algae class differentiation:
  Determination of the chlorophyll content emerging from green algae, blue-green algae, diatoms plus dinoflagellates and cryptophyceae by use of LEDs with visible range from UV to red.

- …of transmission:
  Takes place during each analysis and is used to compensate the effect of turbidity on chlorophyll analysis. The correction is performed automatically.

- …of toxicity (optional):
  Standardized microalgae from a culture are used to determine the effect of toxicity in the presence or absence of the potential toxic water. The ALA compares the photosynthetic activity of sample water treated with untreated microalgae to evaluate the level of toxicity of a water sample. The test takes totally 30 minutes.

- … of algae class activity (optional):
  Records the percentage of photo-synthetically active chlorophyll under illumination, sorted into the different algal classes and provides information about the health of the cell population. Parameter is the variable fluorescence.

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**SOFTWARE**

- Real-time data display
- Saving of data/parameters at any time
- Graphic display of all measurement values
- Online display in LAN
- Parametrization of measurements
- Data export to EXCEL and text files
- Comment input for each measurement

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Do you have any questions? Please contact us!

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