Continuous Analysis. Reliable Results.

**COMPOSER Johann H. Schmelzer - SEIBOLD Online-Analyser for Copper**

**Sources**

Copper is both an essential nutrient and a drinking-water contaminant.

**Natural sources.** Most of the world’s Cu is found and mined in the form of copper sulfides and in combination with other metals that can also form multi-metal-sulfide minerals (Fe, Sn, Pb, Se, As, Sb and Ag).

**Industry.** Copper is used for in electroplating and semiconducting industry,…

**Natural water.** Copper is found in natural surface waters at an average concentration of 0.002 mg/L, ranging from 0.001 to 0.1 mg/L, Cu in seawater is at the upper end of the range.

**Drinking water.** Copper concentrations in drinking-water vary widely, with the primary source most often being the corrosion of interior copper plumbing. A guideline value of 1.5 mg/litre was recommended for copper in drinking-water.

**Toxicity.** Copper is not very toxic to animals and humans but can be toxic to some fish, many invertebrates and microbes, particularly fungi, algae, and bacteria.

**Method**

Metal is measured as chelate complex between metal ions in the waste water and sensitive spectrophotometric reagent dye. Change of the intensity of the visible light throughout cuvette containing formed metal complex is directly proportional to metal concentration.

**Advantage of the system**

- Robust design.
- Minimal maintenance.
- Easy handling.
- High accuracy and precision.
- Suitable for mission critical applications.
- Automated cleaning and calibration.

**System information**

<table>
<thead>
<tr>
<th>Measurement variable</th>
<th>Copper (Cu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement application</td>
<td>Drinking water, river monitoring, electroplating and semiconducting industry</td>
</tr>
<tr>
<td>Measurement ranges</td>
<td>0.01 – 1.00 mg/L (ppm)</td>
</tr>
<tr>
<td></td>
<td>other ranges possible upon request</td>
</tr>
<tr>
<td>Accuracy and Precision</td>
<td>± 3 % (based on full scale)</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 mg/L</td>
</tr>
<tr>
<td>Calibration and cleaning</td>
<td>automated</td>
</tr>
<tr>
<td>Seibold Reagent kit</td>
<td>Buffer and Dye</td>
</tr>
<tr>
<td></td>
<td>Provided by Sigma Aldrich</td>
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</tbody>
</table>
## Measurement Information

<table>
<thead>
<tr>
<th>Measurement method</th>
<th>Spectrophotometric (LED, detector)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement interval</strong></td>
<td>Continuous; Discontinuous (programmable, external start)</td>
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</tbody>
</table>
| **Sample and Reagents consumption per measurement** | Sample: ~ 75 - 200 ml  
Seibold Buffer and Reagent: ~ 3 ml |

## Environmental Data

- **Ambient operating temperature, sample temperature:** 5 to 40°C
- **Ambient operating humidity:** Up to 95% RH non-condensing (below the condensation limit)

## Electrical Data

- **Power supply**
  - Supply voltage: 220 ... 230 V AC, 50...60 Hz (110 V AC or 24 V DC, optional)
  - Power consumption: approx 50 VA
  - Output signal: 4...20 mA
- **Screen**
  - Color, TFT, liquid crystal display (LCD) with built-in backlight and brightness adjustment.

## Maintenance

- Maintenance interval: 3 months