

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

Continuous Analysis. Reliable Results.

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MEASUREMENT INFORMATION
Measurement method
Spectrophotometric (LED, detector)
Measurement interval
Continuous; Discontinuous (programmable, external start)
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 (bellow 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



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