

● COPPER

EZ Series: Continuous Monitoring of Copper

Key Applications: Production and treatment of drinking water and surface water, industrial wastewater treatment

Abundantly available and with many useful properties, Copper has been used by humans for millennia. In prehistoric times it was prized for its physical properties, today Copper is widely utilized because of its thermal and electrical conductivity, and its resistance to corrosion. Although Copper is an essential dietary element and is available in many different foods, as well as drinking water, international standards exist to protect people and the environment from the risks of high Copper concentrations.

Features EZ Series Analyzers

- **Continuously monitor Total Copper and Dissolved Copper to detect trends, peaks, and excursions**
- **Accurate at low levels starting at 3 µg/L**
- **Multiple stream analysis (1 - 8 streams)**
- **Analog and digital communication options**

**Explore the full range of parameters and technologies.
Call your Hach representative today,
or visit hach.com/ez-series**



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The Why, Where and How of Copper Monitoring

About

Copper is a metal that occurs naturally in the environment and is used in a wide variety of products such as wire, electrical circuit boards and water pipes. Combined with other metals Copper is used to manufacture brass, bronze and other alloys. Copper compounds are also applied as pesticides, for water treatment, and as preservatives. Copper is an essential nutrient for both plants and animals. However, ingesting high levels of Copper can cause health problems and very high doses can damage major organs and even cause death.

Copper in Drinking Water

Copper concentrations in drinking water vary widely, with the primary source being the corrosion of Copper piping. Copper levels tend to be lower in regularly running or flushing water, but may accumulate in standing water, especially where water has a low pH or high carbonate levels.

The US EPA requires levels of Copper in drinking water to be less than 1.3 mg/L, and the World Health Organization has a Guideline Value of 2 mg/L.

The European Directive (EU) 2020/2184 on the quality of water intended for human consumption also has a standard value of 2 mg/L.

Copper in Industrial Wastewater

Copper is used in a variety of industrial processes, including metals plating and printing as well as the manufacturing of electronic components, circuit boards, paints, pigments, paper, pulp, and fertilizer.

Some toxic metals in effluent can inhibit biological treatment processes so it is not uncommon for wastewater treatment providers to impose a Trade Effluent Limit for total toxic metals of around 10 mg/L.

The US EPA publishes Industrial Effluent Guidelines for many different industries. For example, the Mining Effluent Limitation Guidelines show a value of 1 mg/L (max. for any day and max. average for 30 consecutive days), and the Electrical and Electronic Components (E&EC) Effluent Guidelines and Standards (40 CFR Part 469) are currently being studied for possible revision.

Copper in Mine Waste

Discharges from mines can contain high levels of metals that require treatment. However, once mines fall out of use, water levels rise and the (usually acidic) water dissolves metals such as Iron, Zinc, Copper, Lead, Cadmium, Manganese and Aluminium; presenting an ecological threat to both groundwater and surface water.

Copper Monitoring Solutions

EZ Series Copper Analyzers are available in several models:

EZ1010/11	Copper Cu(II), dissolved
EZ2002	Copper, total
EZ2302	Copper, total & Cu(II), dissolved

Options

- Selection of different measuring ranges to match your application
- Monitoring of up to 8 sample streams per analyzer, reducing cost per sampling point
- Analog and/or digital outputs for communication
- Self-cleaning sample preconditioning panel