Copper (Cu)

Method - Colorimetric

After adding the sample into the measurement cell, some reagents are added in order to adjust the solution to the desired conditions (pH, valence's elements, etc.). Then, a blank is done to correct any temperature or turbidity disturbance. Subsequently, a last reagent is added, and it reacts with solution developing a color, which is measured using a correct wavelength. Thanks to the photometer used, the result achieves a great accuracy.

Principle of measurement

The method relies upon the reduction of copper(II) to copper(I) by in acidic solution. The neocuproine reagents reacts specifically with the cuprous ions. Iron, if present, is also reduced to the ferrous(II) state which would react with the neocuproine.

Advantages of the method

The method is specific for copper and the cuprous(I)-neocuproine complex has such a well-defined and relatively strong absorbance that low ppb levels of copper can be measured using this method. The content of Iron can be removed with an extra reagent.

Specifications

Range: From 0 to 50 ppb / 250 ppb / 500 ppb / 2 ppm.
Adjustable higher concentrations with internal dilution.
Accuracy: ±2%
Repeatability: ±2%
Resolution: 0,1 ppb
Minimum value detection: 2-3 ppb
Analysis time: around 12 minutes
Calibration: two point
LED Wavelength: 450 nm

Reagents consumption

- Reagent 1: 1.7 ml / analysis — 1.25L / month
- Reagent 2: 0.7 ml / analysis — 0.50L / month
- Reagent 3: 0.3 ml / analysis — 0.25L / month

Monthly consumption calculated assuming 1 analysis per hour.

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www.instran.net

Instru office
c/ Penedés, 46
08820 El Prat de Llobregat
Barcelona • Tel.+34 934 787 161
instran@instran.net
c.salinas@instran.net

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