

# Copper Analyzer Cart

## Portable copper-waste monitoring system

- » Automatically measures copper levels to determine copper concentration
- » Provides early warning of problems, before permits are violated
- » Continuous testing allows real-time monitoring
- » Eliminates false positive readings caused by turbidity
- » All wetted surfaces chemically inert



### Features at a glance

Celerity's copper analyzer cart automatically monitors the effectiveness of copper extraction systems. It provides early warning of problems, before risking violation of permits. Further, the cart samples and monitors up to six discreet streams, even at different concentration ranges. It is easy to set up, easy to use, and ensures regulatory compliance while capturing the maximum value for copper recovery.

### Summary of benefits

- Automatically measures copper levels from different points in copper extraction systems to determine concentration
- Dual wavelength system eliminates false positive readings caused by cloudiness or turbidity. System employs a second reference measurement, taken at a wavelength that lies outside the absorption bands of the species under test.
- Continuous testing enables monitoring of processes in real time from multiple points in a process. (Not having to wait for outside lab tests enables early and quick correction of problems, before exceeding permitted copper release.)
- Configurable to specific needs using either direct or indirect measurements
- Internal printer provides real-time documentation (it communicates directly with facilities management systems)
- All wetted surfaces are chemically inert
- Packaged in UV resistant, easy to roll cabinet or bench mount configuration

### Specifications

Dual wavelength colorimetric measurement technology

Dual range:

0–5 ppm, 0–50 ppm:

- Bathocuproine method: 2 reagents + DI water
- Limit of detection 30 ppb (at 3 sigma)
- Dilution required above high limit of 2ppm

0–1 ppm:

- Neocuproine method: 3 Reagents
- Limit of detection 17 ppb (at 3 sigma)
- High limit of 1 ppm

Standards:

- DI water for 0 ppm
- 5 ppm copper (low range)
- 50 ppm (high range)

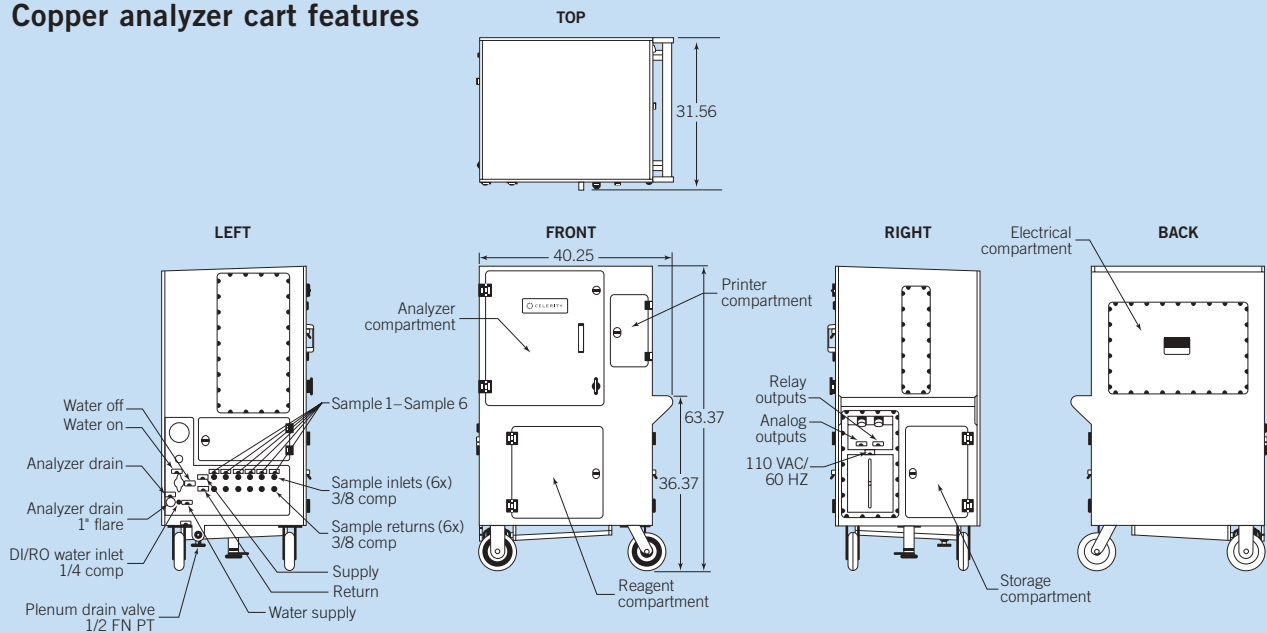
Accuracy: 2% of the full scale

Minimum cycle time: approximately 7 minutes

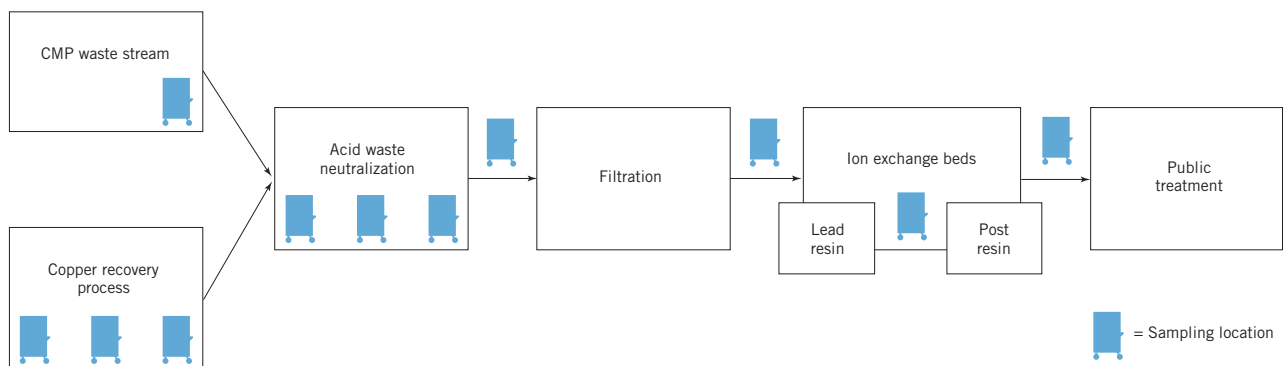
Communications:

- Analog, digital and RS-232 connections
- Easily connected to central control or data acquisition system
- Additional isolated output for alarm conditions

## Copper analyzer cart features



## Typical sampling locations



## Facility requirements

- DI water
- Universal power supply accommodates 90 to 250 VAC
- Sample temperature not to exceed 70°C
- Sample flow rate 100 to 900 ML/minute @ 50 psi maximum
- Ambient operating range: 5°C to 45°C
- Sample source and drain

## Cost of ownership

- Reagents: typical usage \$1000 per year for two (2) reagents with 1 sample stream every four hours
- Peristaltic pump tubing should be replaced monthly
- Calibration solution



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