

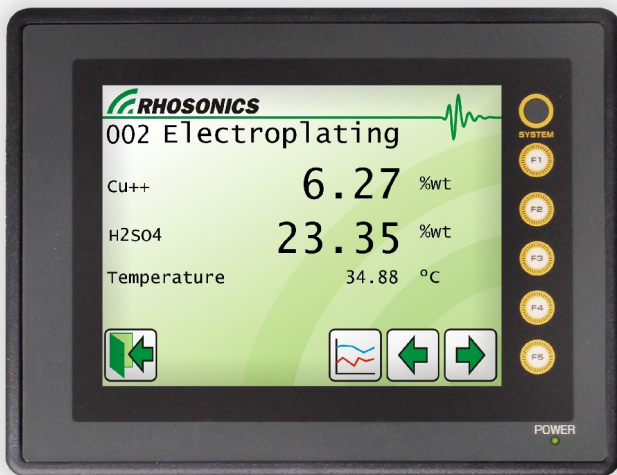
FeCl₂
H₂SO₄
HCL
NaOH
FeSO₄
Slurries

Application Notes

▶ **Electroplating - Metal Foils**

TMAH

Slurries



Minimal Maintenance

The non sample contacting probes are not affected by electronic drift or fouling providing real time process data. No special qualified personnel is required to operate and maintain the analyzer.

Since the system operates on physical principles, no assistance from the laboratory is required in providing reagents.

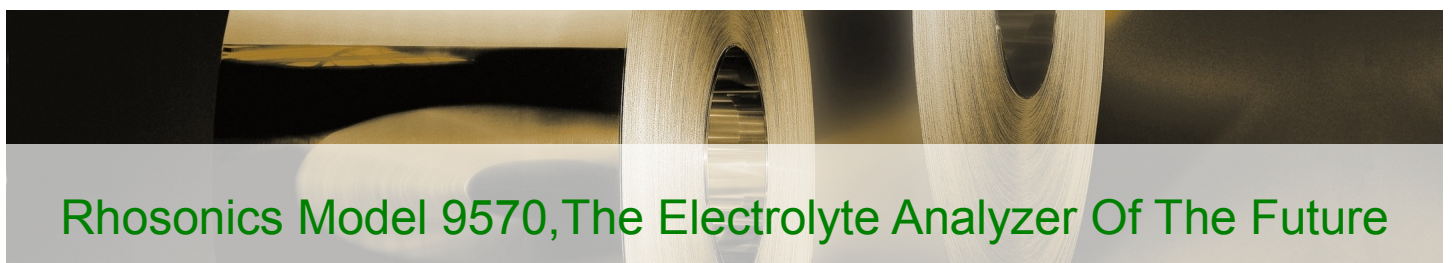
Principle of operation

The *Rhosonics Model 9570* drives a pair of sensors, one measuring the ultrasonic sound velocity and temperature, the second measuring the electrical conductivity of the copper/acid electrolyte. While the relationship between measured parameters and chemical composition is mathematically modeled by means of a proprietary algorithm, the core unit of the inline analyzer gives a continuous reading of both acid and copper concentration. No tools are required for the day-to-day operation of the analyzer, no reagents are necessary, and the calibration retains a lifetime validity. Providing fully automatic feedback of chemical concentration data, *Model 9570* allows real-time correction of Cu⁺⁺/H₂SO₄ composition which improves control of the copper electroplating process. In addition, stabilizing the copper foil plated on the surface of turning roller ensures maximized products quality and higher step yields.

Introduction

Electroplating is the process for the production of metal foils. Modern electrolytic metal manufacturing process, copper in particular, demands precise control over the chemical composition of the electrolyte solution to yield optimal product quality at minimal energy costs.

Rhosonics Analytical introduced a new and highly accurate inline analyzer to measure both sulfuric acid and copper ion concentration, providing real time analysis results which allow full automation of your copper processing plant.



The system

For realizing the highest possible accuracy, Model 9570-AS is available as a compact, self contained unit which can be directly connected to the electrolyte tank using PTFE tubing for supply and return of a representative portion of the fluid. The 9570-AS contains all the components to prepare the bypass stream for an optimal analysis result, which require minimal maintenance. As the electrolyte is analyzed on a continuous basis, the process can be controlled, using the analog outputs or one of the available communication options, such as Ethernet and Profibus DP.

For unit manufacturers, Model 9570 is available with flow-through cells, which allow easy installation in bypass loops.

The sensors

Both Model 9570 and 9570-AS employ maintenance-free sensors, made of stainless steel and/or PEEK, adapted to fit inside PVDF or CPVC flow-through cells. The sensors are well resistant to chemicals and perform excellently in the entire temperature range at which copper baths are operated.

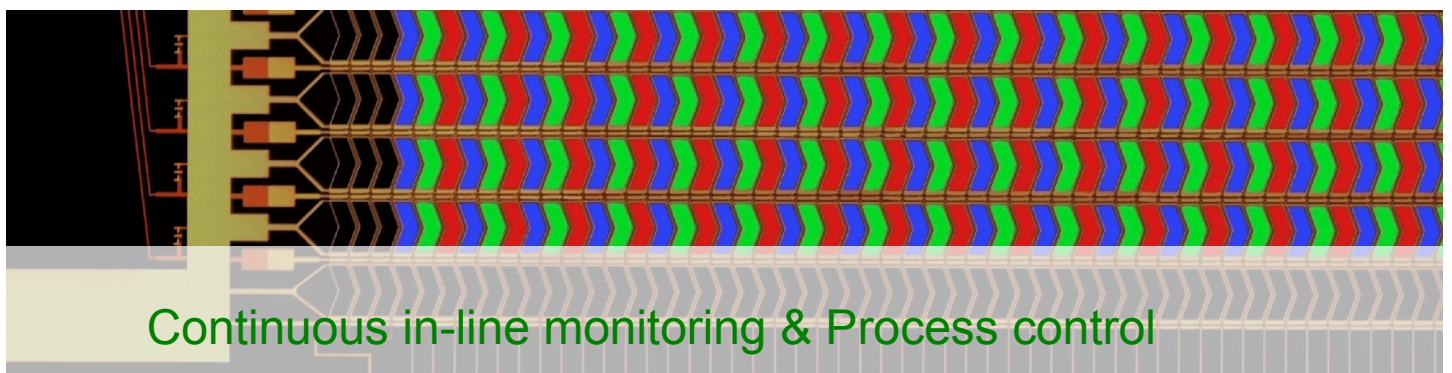
Measured parameter	Range	Resolution	Accuracy
Temperature	10...65 °C	0.001 °C	0.005 °C
Sound speed	500...3000 m/s	0.002 m/s	0.01 m/s
Analog outputs (2x)	4...20 mA	0.01%FS	0.05%FS
Copper ion	0...100 g/l	0.1 g/l	1%FS
Sulphuric acid	0...220 g/l	0.2 g/l	1%FS

Features

- Accuracy and repeatability over broad measuring range
- Instant response
- Independent of temperature
- NO moving parts, NO reagents
- Minimal maintenance

Benefits

- Precise chemical concentration analysis
- Real-time automated process control
- Instant energy savings
- Improved product quality





The Solution Specialist

The mission of Rhosonics Analytical is to provide solutions for In-line concentration analysis of virtually all existing process liquids, including electrolytes, emulsions, suspensions and slurries.

For almost two decades, Rhosonics Analytical has been focusing on the development and employment of high-performance ultrasonic technologies for in-line liquid concentration analyzers and non-destructive testing of materials.

Our products

- In-line concentration analyzers for virtually all existing process liquids, including solutions, electrolytes, emulsions, suspensions, solids and slurries.
- Piezo composite transducers for Ultrasonic NDT (Non-Destructive Testing) for new inspection methods, including ToFD and Phased Array.

The Solution Specialist

Rhosonics Analytical is The Solution Specialist for the design, production and supply of ultrasonic in-line process analyzers for liquids and slurries in any industry world wide.



Contact & Distributors

Rhosonics Analytical BV
Midden Engweg 37A
NL-3882 TS PUTTEN
THE NETHERLANDS

Tel. +31 (0)341 370073
Fax.+31 (0)341 370074

www.Rhosonics.com



Worldwide distribution.
Please check our website for details.

