

FeCl₂
H₂SO₄
HCL
Etching
CuSO₄
Slurries
Pickling
TMAH
Slurries

Application Notes



Benefits

The real time analyser of Rhosonics offers the following benefits in the control of chemicals:

- Very easy to install
- Including density measurement
- Fully inline, zero intrusion
- Very insensitive to gas bubbles

Examples

To passivate the zink in steel plates, hydrochloric acid can be used to react with the iron, present as iron chloride. To monitor and control this process, a Rhosonics 9500 series analyser is used to control the concentration of hydrochloric acid and ferric chloride. The risk of under or over pickling will dramatically reduce as well as the consumption of acid. Special software is made for this application, see the screen shot of our analyser above.

Other examples of pickling baths are:

- Selectively removal of Al₂O₃ from aluminium in the chromium conversion coating process. HF and H₃PO₄ are used in the pickling bath.
- At pickling in solutions containing sulphuric acid, metal sulphates develops by the reaction of acid on the iron.

Application

Hot-dip galvanized coatings protect iron or steel by providing cathodic and barrier protection and it makes the metals looks better. To prevent the coatings or the bare steel itself from wet storage stain or to delay the formation process of zink oxides and zink hydroxides, the coated metals are passivated in pickling baths.

Pickling baths can be found in the complete metal industry. As this industry is characterized by process speed and quality, one must rely more then 100% on the quality of the chemicals and thus on the analysers that controls the mixing, blending and dosing of the acids.

Rhosonics offers a very accurate and reliable real time ultrasonic analyser for the determination of the acid concentration as well as the dissolved metals.



The Pickling Analyzer of the Future

Benefits

For this application our hybrid ultrasonic technology can be used for the determination of both acids and metal salts, in most cases extended by our inductive conductivity sensor. The benefits of using this technology are:

- Very low price and cost of ownership
- High accuracy and reproducibility
- Maintenance free
- No cleaning needed
- No moving parts
- No reagents

Depending on the concentrations and mounting possibilities, the analyser will be selected from the 9500 series. The sensor can be of the UMP, UFTC or UFTW type. This combination will offer the following features:

- Insitu, spool and wafer sensor technology
- High-end software technology, easy to operate
- Colour graphics touch screen display
- Datalogging
- Various communication protocols, like Modbus

Model selection

Controller:

Model 9570 Ternary analyser aqueous solutions

Model 9580 Ternary analyser slurries

Sensor:

UMP50 in flow cell or UFTC/UFTW

PEEK Conductivity sensor

Options:

Cables, connectors and enclosures

System integration with pumps, degassing, cooling

Examples

Method

Ultrasonic sound velocity

Ultrasonics Attenuation

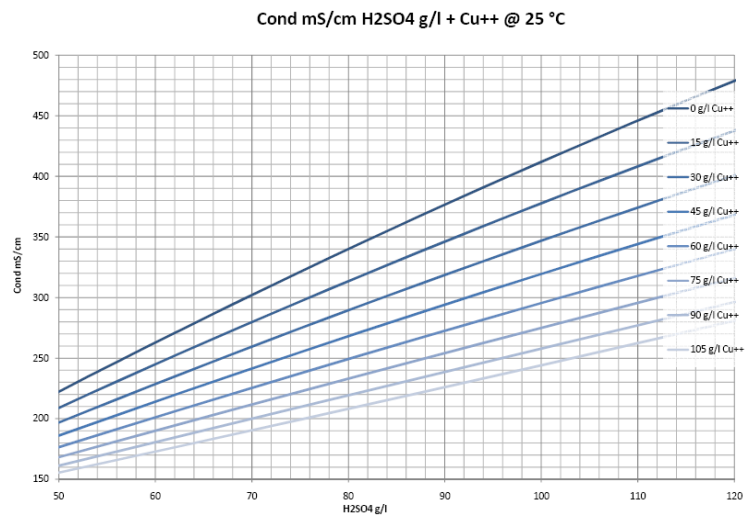
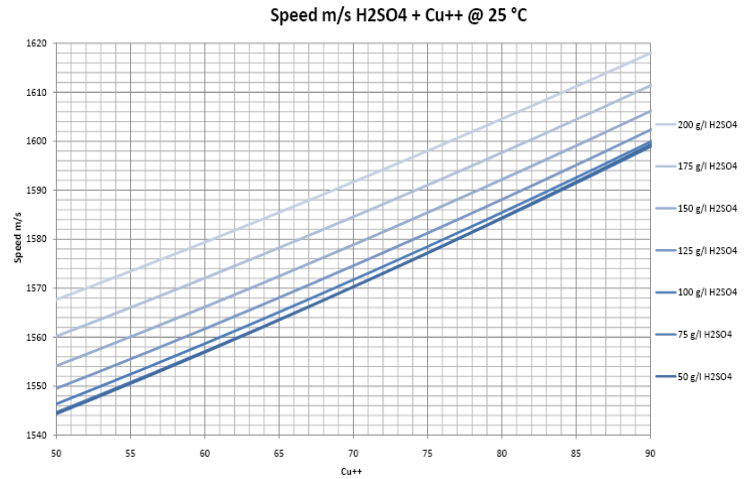
Electrical Conductivity

Typical calibrations

Cu⁺⁺ and H₂SO₄

Fe⁺⁺ and HCl

Al⁺⁺ and HF and H₃PO₄



Continuous in-line monitoring & Process control



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.



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