

FeCl₂
H₂SO₄
HCL
Density
FeSO₄
Slurries

Application Notes

▶ **NH₄OH - Ammonium hydroxide**

NaOH

Slurries



Industries

This application can be found in many industries, like:

- Scrubbers for acidic oxides (CO₂, SO₂, H₂S)
- Mineral ores for zink
- Fertilizers
- Chemical plants

Application

Ammonia dilutes in water to form Ammonium hydroxide (ammonia water, aqua or aqueous ammonia) which is a strong base. The concentration of ammonium hydroxide is reported as wt% NH₃ or NH₄OH.

Rhosonics has developed a very accurate analyser to determine its concentration in the whole range and with a broad temperature range.

The concentration is measured based on speed of sound determination. As the speed of sound is depending on the temperature, both parameters are measured with a very high accuracy. The calculation of the concentration is then based on a polynomial function offering the highest accuracy on the market (0.01 wt%).

Description

Ammonium hydroxide is used in several industries either in concentrated form or in dilutions down to a few ppm. In practice, the product can be measured with high accuracy in a well equipped laboratory using off-line density or gravito meters. When the product must be measured inline with the same degree of accuracy, other methods are required. Inline sensor systems, like conductivity sensors, refractive index meters or coriolis meters, simply lack sensitivity for specific applications, or do not seem to respond anymore at larger concentrations of NH₄OH. Chemical methods, like titration analyzers are only needed when the sample exist of more than two dissolved solids. Therefor, the Model 8500 NH₄OH analyser is the most accurate insitu real time process analyser on the market for this application.

The Chemicals Analyzer of the Future

Model selection

Controller:
Model 8500 Inline Process Analyzer
Model 8520 Dual sensor Inline Process Analyzer

Sensor:
UMP-130 US sensor explosion proof, or
UMP-48 US sensor non explosion proof

Options:
Cables, connectors, enclosures, system integration

Benefits

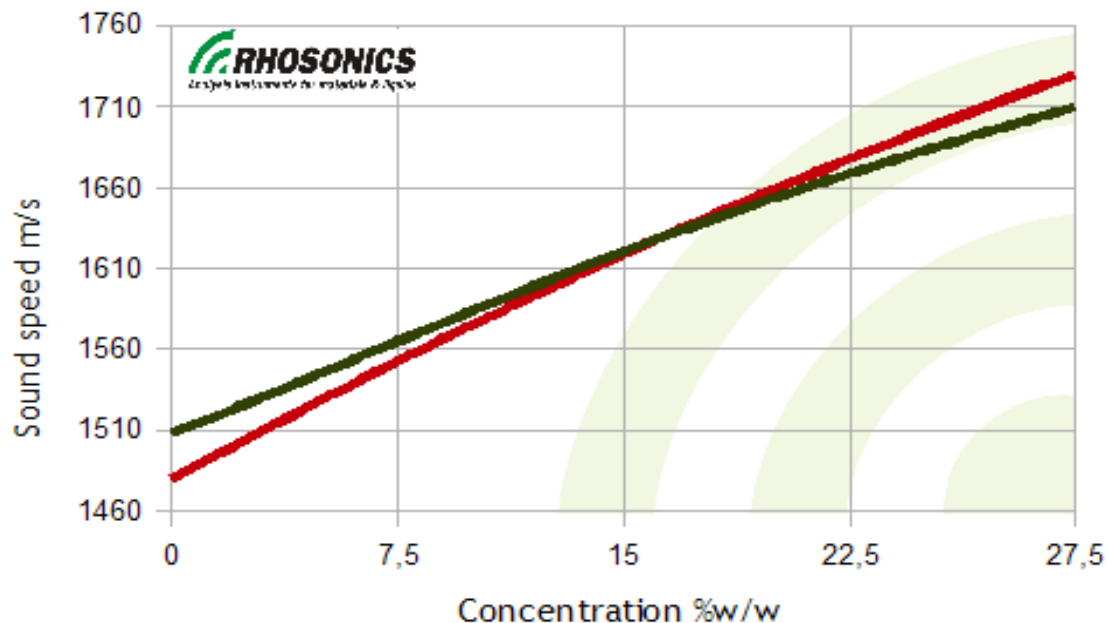
For this application our UMP probes are suitable, but also the new hybrid ultrasonic technology can be used for the determination of NH_4OH . The benefits is that the temperature is measured based on ultrasonic technology; we measure the speed of sound and we also determine the density of the liquid. Other benefits are:

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

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

Sound speed vs. concentration

NH_4OH 0-27,5%w/w $t= 20$ and 30°C





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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