

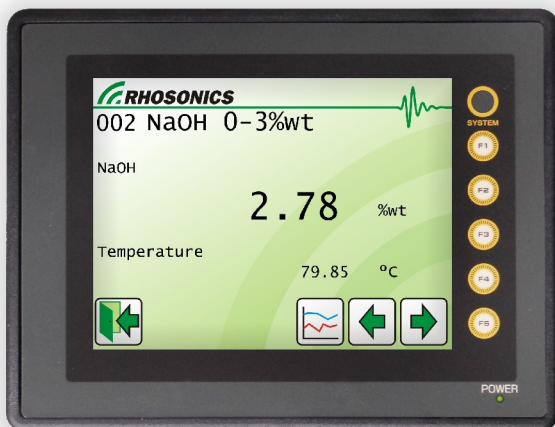
FeCl₂
H₂SO₄
HCL
Density
FeSO₄
Slurries

Application Notes

▶ **NaOH - Sodium hydroxide**

TMAH

Slurries



Application

Sodium hydroxide (lye, caustic, caustic soda, or sometimes named sodium hydrate) is a caustic metallic base. Sodium hydroxide forms a strong alkaline solution when dissolved in a solvent as water, methanol and ethanol. Pure NaOH is a white solid, available in pellets, flakes, granules and as a 50% saturated solution. As NaOH is the most used chemical base in the world, Rhosonics has developed a very accurate analyser to determine its concentration in the whole range and with a broad temperature range.

NaOH is produced via the chloralkali process. This involved the electrolysis of an aqueous solution of sodium chloride. The NaOH builds up at the cathode, where water is reduced to hydroxide ions and hydrogen gas.

Industries

This application can be found in many industries, like:

- Pulp and paper
- Mineral ores
- Etching of aluminium
- Textiles
- Drinking water
- Soaps and detergents
- Food & Beverages
- Breweries as CIP cleaner
- Electrics production as stripper
- Biodiesel
- Scrubbers for acidic oxides (CO₂, SO₂, H₂S)

Description

Sodium hydroxide is used in several industries either in concentrated form or in dilutions down to 400 ppm. In practice, the product can be measured with high accuracy in a well-equipped laboratory using off-line density 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 NaOH. Chemical methods, like titration analyzers are only needed when the sample exist of more than two dissolved solids. Therefore, the Model 8500 NaOH 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
Model 9600 Slurry analyser, in case of NaOH+low slurry
Model 9680 Slurry analyser, in case of NaOH+high slurry

Sensor:

UMP-130 US sensor explosion proof, or
UMP-48 US sensor non explosion proof
UFTC or UFTW sensor is also possible

Options:

Cables, connectors, enclosures, system integration

Benefits

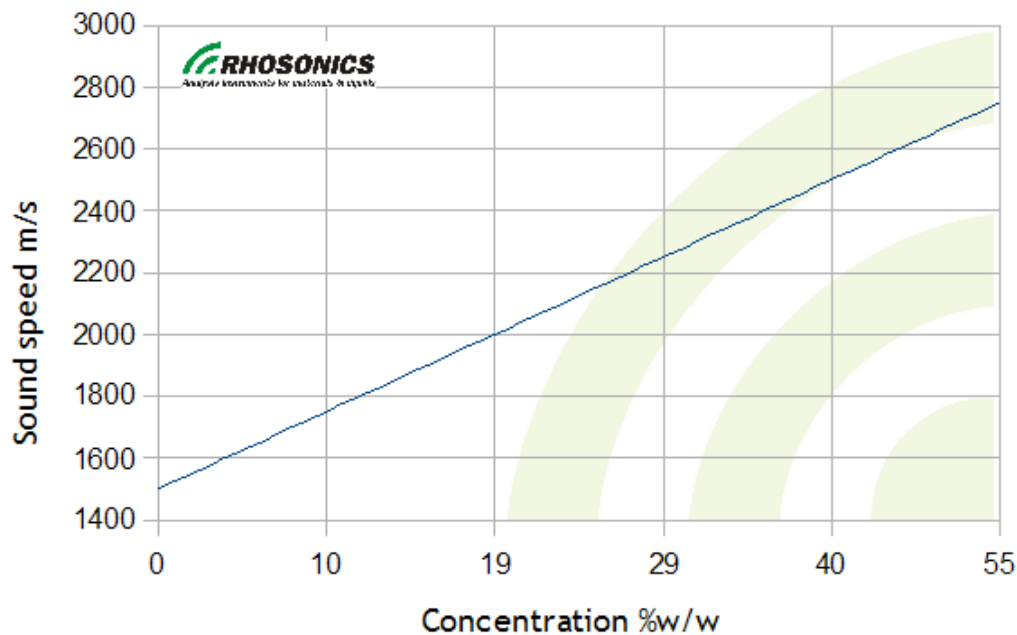
For this application our UMP probes are suitable, but also the new hybrid ultrasonic technology can be used for the determination of NaOH. The benefit is that the temperature is measured based on ultrasonic technology; we measure the speed of sound and we also determine the density of the liquid. Other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

NaOH 0-50%w/w t=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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