

The Advantages of the Ultrasound Technology

Concentration, Dissolved Solids, Wt. %, Vol %, Density, °Brix °Baume



Rhosonics Analyzers

Analyzers are used to measure the strength, amount or concentration of acids, bases, salt solutions, emulsions, oils in water, alcohols, sugar solutions, non-aqueous liquid mixtures, polymers, and many others.

We measure the properties of ultrasonic sound waves.

We measure 2 ultrasonic variables with the Rhosonics Analyzer

- **The sound velocity**
- **The sound attenuation**

The Sound Velocity is basically affected 99% by the dissolved solids, and marginally by suspended solids.

The Attenuation is 99% affected by the non-soluble solids.

This means that we can measure both concentrations INDEPENDANTLY with the same sensor (Dual 4 /20 mA Outputs)

The accuracy of the soluble measurement is extremely good, thanks to the fact that the sound speed changes a lot and temperature has only a marginal impact.

Acids and Caustics: ± 0.05 Wt. % / Salts: ± 0.1 Wt. %

Organic liquids: ± 0.1 to 0.2 Wt. % / Oils in water: ± 0.2 Vol. %

Rhosonic Technology with gas or/and bubbles in the liquid

Even gas bubbles or particles that are present in the medium concerned will not lead to incorrect measurements, because they are automatically detected.



We only need a “bubble free” **window period within the liquid less than 10% of the time.** We only need one good shot in the middle of many bad ones, if gas is present, we freeze the reading for as long as the gas is present.

When air is present some times, the density meter and the nuclear gauges or other devices do not have any means of detecting the presence of gas bubbles.

It is very important to find out whether gas is sometimes present, or present at all times.

When gas is present all of the time,

Our analyzer will also experience problems as it will simply never be able to penetrate the sound wave through a bubble free liquid (in large quantities).

Degassing tanks or pipes are then the only available option.

When it is more than 2 bars, gas bubbles are usually only present a couple of times per day (***causing no problems to the Rhosonics, but creating drifts and problems for other instruments.***)

The Rhosonics Sensors

A choice of intrusive or non-intrusive sensors

Simple installation at a Flow through cell or tanks

Standard: 316 Stainless Steel, also available in 304 SS, C20, Hastelloy B & C, Polypropylene, Kynar (PVDF) PEEK and other materials.

- The MP42 for Food and Chemicals blending is used with the Varivent flow cell for pipes from 2 inch to 10 inch (PVDF coating in option)
- The MP130 Installation in tanks or vessel
- The MCS series Flow through flow cell: Wafer or spool design from 2 inches to 20 inches.

The Rhosonics concentration Analyzer is the most accurate instrument for inline analysis of solutions or complex liquids with more than one dissolved or suspended component.

Applications

- **PETROLEUM PRODUCTS and interface**
- **CHEMICAL PRODUCTS “BINARY AQUEOUS SOLUTIONS AND SLURRIES”**
- **TRINARY AQUEOUS SOLUTIONS**
- **NON-AQUEOUS SOLUTIONS AND SLURRIES**

**Ask for the partial list of tested liquids for the Sonic Concentration Analyzers.
If your product has not been tested, Procon Technologies will test your application for free.**