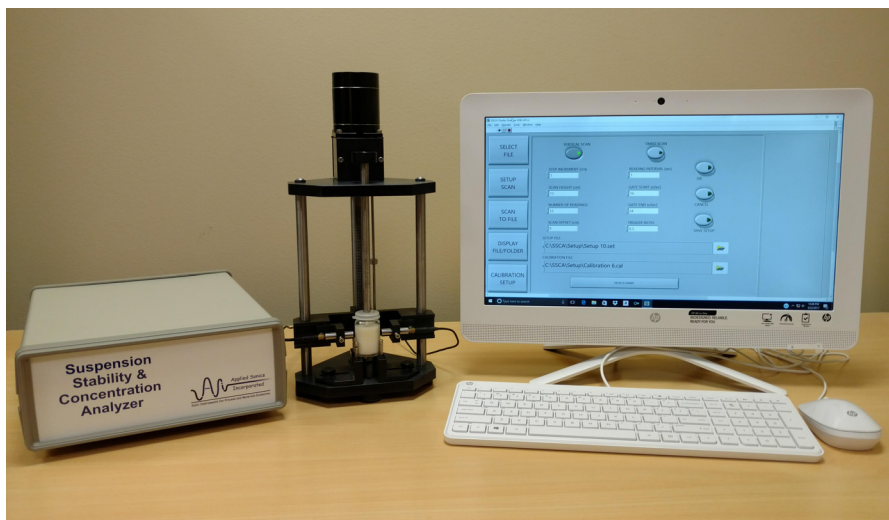


Suspension Stability and Concentration Analyzer

Non-contact Concentration and Settling Rate of Suspensions and Emulsions



- **Dispersion and Suspension Stability Testing**
- **Solids in Liquids Concentration Measurement**
- **Quality Control Testing**
- **Shelf Life Testing**
- **Analysis of the Effectiveness of De-emulsifying Chemicals**

The Suspension Stability and Concentration Analyzer is an easy to use system that can measure the relative concentration of suspensions and emulsions. The computerized system takes ultrasonic measurements of a sample, then produces a graph of the concentration profile. Changes in the profile indicate the stability of the material.

BENEFITS

- Nondestructive, rapid analysis quickly detects any settling of suspensions or emulsions
- Sample containers may be removed, stored and retested over time
- Stability can be determined in the actual product container
- Measures opaque and high-solids samples
- Eliminates time consuming testing such as freezing/sectioning/drying
- Quickly assures stability of suspension formulations
- Sensitive, consistent concentration readings
- Monitors long-term stability without tying up the instrument

EXAMPLE INDUSTRY USES

CHEMICAL

Monitor the settling rate of suspensions. Measures solids concentration to determine extent of reaction (e.g. polymerization). Checks creaming and sedimentation in agrichemical emulsions. Controls dilution.

INKS

Rapidly determine stability of new formulations

OIL AND GAS

Determine the effectiveness of oil-water emulsion breaking chemicals. Tests surfactants and drilling mud.

MINERALS

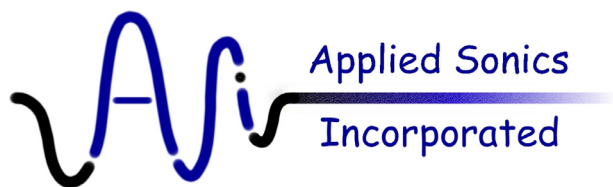
Tests flocculants and monitors product stability.

FOOD & PHARMACEUTICAL

Measures the stability of new formulations for emulsions and dispersions. Tests for quality and shelf life.

COAL FUELS

Monitors slurry formulations to ensure stability of delivered fuel.

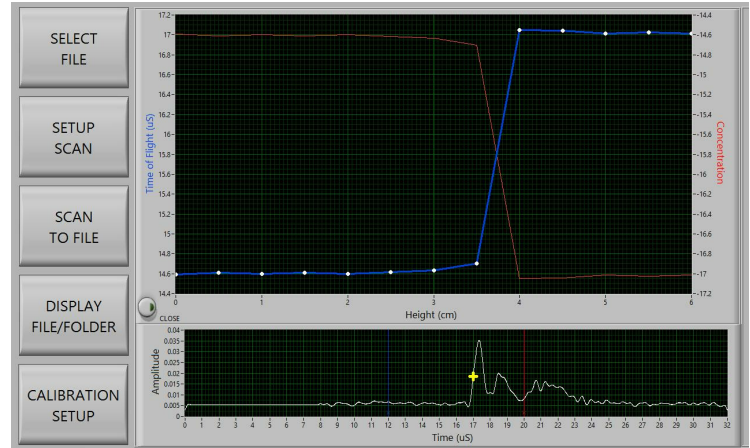


Sonic Instruments for Process and Materials Evaluation

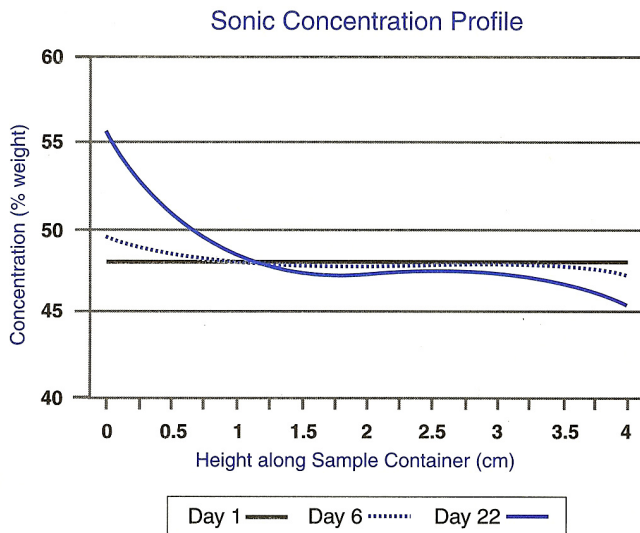
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HOW IT WORKS

The Suspension Stability and Concentration Analyzer (SSCA) quantifies the stability of suspensions and the concentration of emulsions and liquid mixtures. The SSCA scans a pair of ultrasonic sensors along the outside of a sample container in a water bath, taking time-of-flight (TOF) measurements at programmable vertical increments. The SSCA generates a graph of the concentration profile of the sample. During the scan, the ultrasonic signal and TOF reading are displayed at each height along the container. After the scan, the sample container can be removed from the water bath, stored, and re-tested over long periods of time. The settling rate or stability of the sample can be measured quickly and precisely. The SSCA can also be used, as a quick and non-destructive measure of component concentration in non-settling samples.



Scan of an emulsion with a sharp interface in concentration. The ultrasound signal is displayed below the real-time measurements during the scan. Viewing the signal assures that the TOF reading is measured at the correct time (yellow cross).



The chart at the left shows three concentration profiles taken over a 22 day period. The height on the container where the reading was taken is plotted along the bottom axis and the concentration on the left axis. Initially, the profile for the shaken sample is uniform from top to bottom at 48%. Some settling is just beginning to show on the 6th day, with the bottom concentration reaching 49.2%. By the 22nd day, an interface, still not visible, is beginning to form at a level of 1 cm in the container.

SPECIFICATIONS

SYSTEM

Accuracy: 0.1 % concentration or better
(calibration dependent)
Precision: +/- 0.02 microseconds TOF
Interface: USB 2.0
Software: Windows 10
Computer: All-in-One PC (supplied)
Power: 100/115VAC, 50/60 Hz, 1A

SCANNER

Travel: 7" standard (14" optional)
Container: Adjustable for many sizes and shapes
1/2 to 3" diameter
Bath: Scanner and samples should be placed in a temperature controlled water bath prior to measurements
Temperature: 5° to 60°C
Size: 4"W by 4"L by 12"H

All specifications are subject to change without notice