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14859-E

Patent(s) Issued

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Available Technologies

Ultrasonic Characterization of High Solid Content Suspensions

SUMMARY

Suspensions or slurries having moderate and high particle concentrations are found in a variety of industries. As the characteristics of the suspensions influence production costs, product quality and yield, it is useful to rapidly, cost-effectively, and non-invasively characterize these suspensions.

Using an ultrasonic field, properties of a solid-liquid suspension such as through-transmission attenuation, backscattering, and diffuse field are measured with this novel technology. These properties are converted to quantities indicating the strength of different loss mechanisms (such as absorption, single scattering and multiple scattering) among particles in the suspension. Such separation of the loss mechanisms can allow for direct comparison of the attenuating effects of the mechanisms. These comparisons can also indicate a model most likely to accurately characterize the suspension and can aid in the determination of properties such as particle size, concentration, and density of the suspension.

ADVANTAGES

- no need for dilution -- less chance for error and less labor
- does not solely rely on attenuation (typical of commercial devices that are limited to use at low solid concentrations)
- no clogging as commonly seen in small propagation path devices
- avoids inaccuracies associated with transducer alignment



Patents & Intellectual Property

- » Patent #: 7,739,911

Technology Portfolio(s)

- » Ultrasonics
- » Physical Sensors

Potential Industry Applications

- » Chemicals
- » Food, Beverage & Tobacco
- » Manufacturing & Warehousing
- » Oil & Gas

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