

Microscopy System Performs Real-Time Particulate Analysis

Competitive Advantages

- ☑ Microscopy provides new data on particle characteristics.
- ☑ Proprietary central core unit can be used with standard microscope and lab equipment.
- ☑ Useful in fields such as biology, pharmaceuticals, and wastewater testing.

A new chromatographic system that combines light scattering with microscopic imaging can detect, identify, and characterize particulate matter in liquids during ongoing capillary flow.

The system is based on a proprietary capillary central core unit. This device directs laser light through a capillary tube, controls flow rate of liquid passing through the tube, and aligns the objective lens of a microscope with the tube contents.

A video camera records the scattering of the laser beam caused by soluble molecules flowing through the capillary tube.

Images of the scattered light can be stored in computer memory for data analysis, and a video signal amplitude detector provides online scattering intensity detection.

The system's applications include liquid chromatography, capillary electrophoresis, and detection of minute amounts of chemicals in solution.

Commercialization

The particulate imaging system will be of value in a wide variety of laboratory settings such as pharmaceutical labs,

wastewater facilities, biology research labs, and educational institutions.

Unlike standard commercial systems that only detect the intensity of scattered light, the capillary flow-based system allows the use of microscopic imaging for data collection and enables researchers to gain new knowledge about the size, inter-particle interactions, and microfluidic properties of the particles they investigate.

This invention can be commercialized as a comprehensive, turnkey system that includes all necessary detection circuitry and data recording capabilities. In addition, the central core unit can be offered as a standalone component that allows research labs to assemble custom systems for specific detection applications.

Next Steps

Testing has been conducted and will continue to complete the instrumentation operational protocols and establish a library for capillary flow spectroscopy.

Patent/Licensing Status

Patent pending. Exclusive rights available.

UVM Innovations
The University of Vermont Office of Technology Transfer

Instrumentation - Environment



Primary Investigator

Dr. Jie Yang
www.uvm.edu/~jyang/yang.html

Case Manager

Kerry Swift
802/656-9964 (tel) 802/656-8782 (fax)
kswift@uvm.edu
Given Building E201, Burlington, VT 05405