

Soils and Sediments Measured with the Partica LA-960

Introduction

Measurement of the particle size of soil and sediment sample is a critical part of understanding the geological history of a particular area. The nature of most samples is a wide range of particle sizes, from sub-micron clay up to sand and gravel. The relative contributions across these size ranges have traditionally been measured with several different analytical techniques to cover the range, including sedimentation and sieves. The wide measurement range of the LA-960 allows samples to be run very quickly and to cover the size range in one analysis.

Analytical Test Method

RI (particle): 1.44-0.10i

Dispersant fluid: Deionized water with 0.1% sodium pyrophosphate.

Sonication: 20 seconds, power 4

Circulation speed: 5

Agitation speed: 3, continuous

Note: For samples with a significant amount of fine material, the duration or intensity of the ultrasonic treatment may need to be increased to fully disperse the clay fraction. Two rinses may be required to completely clear out the larger fractions.

Results

The measurement results correlated well with expectations. The samples had previously been analyzed with sieves and sedimentation. The limited range and resolution of these techniques does not show the full distribution of sizes and would require 20-60 minutes per sample. With the wide range and speed of the LA-960 each sample only requires approximately 90 seconds, including sonication and two rinses.