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PSD ANALYSIS

Comprehensive particle size/count analysis sampling produces graphic and tabular presentation of particle size, total counts, counts percent, volume percent, PPM and total suspended solids. Ideal for water treatment plants, ground water analysis, filtration sizing, filtration testing for cooling towers, and pre/post filtration tests.

The measurement of particulate matter in water treatment is critical for the assessment of: Source Water Quality, Finished Water Quality, Unit Process Performance, and Total Treatment Efficiency.

OPERATION THEORY

Utilizing the principle of "near angle light scatter", a revolving laser beam passes through the walls of a glass container of a flow-thru cell. When it is directed through a central "sensitive zone" that counts the particles in suspension and tabulates their size as well. The analog signals generated by the light pulses are routed to a computer and digitized. The particle sampling software contains an NSF mode that automatically calculates and classifies the information into a usable reporting format. It provides data in a manner that is reliable and accurate.

The software provides an easy means of analyzing and saving data, provides sizing information and histogram of size distribution in addition to indicating:

- Absolute Counts
- Mean Size
- Mass Distribution
- Percentage Distribution
- Standard Deviation
- Total Suspended Solids

APPLICATIONS

- Water Treatment Plants
- University Laboratories
- Pharmaceutical Manufacturers
- Bottling & Beverage Operations
- Oceanographic Studies
- Liquid Chromatography Solvent QC
- Cooling Tower and Waste Water Filter Efficiency
- Particle Agglomeration Studies
- Silts and Sediment Sizing
- Particle Settling Characteristics
- Corrosive Chemical and Solvent Sizing
- De-ionized Water and Acid Testing
- Cell Counting

Water filters must be rated according to their performance in particulate removal. Particles are introduced into the influent stream as part of an aqueous solution, of a known particle size and concentration. The water filters are then challenged into removing these particles. The effluent stream is then quantified and the filter is classified according to its performance. This procedure requires both sizing and counting functions.

THE USE OF THE PARTICLE COUNTING FOR THE EVALUATION OF FILTER PERFORMANCE

An important goal of water treatment is to separate out solids or particles from the raw influent. Currently, turbidity and suspended solids measurements are used in the water industry to measure light scattered by suspended material in a water sample and suspended solids expressing the weight of solids suspended in a sample. While valuable, these measurements have their limitations. Both are gross and indirect indicators. Neither gives information about the size, and concentration of the individual particles in the water. This information can only be obtained through the use of Particle Size Analysis.

Particle size and distribution analysis can provide a more sensitive measurement of particulates in water and can be a very valuable analytical tool for the evaluation of filtration performance. Knowledge of the number, size, and distribution of the particles present in water, before and after treatment, can provide a better means of selecting, and subsequently optimizing treatment processes.