UNDERSTANDING PARTICLE SIZE DISTRIBUTIONS

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Particle size distribution analysis is an important tool in a variety of industries, particularly in the design and verification of filtration systems in the environmental field. Therefore, understanding the terminology, available techniques, and underlying assumptions of particle size analysis is critical in order to properly interpret and utilize particle size data for real world applications. This presentation will cover how to interpret particle size distributions, including mathematical treatment, number vs. surface area vs. volume weighted data, and common measurement responses. Also included will be a brief overview of widely used analytical techniques such as sieving, sedimentation, laser diffraction, light obscuration, electrical sensing zone, dynamic light scattering, and microscopic image analysis including their detection principles, advantages and disadvantages, and underlying assumptions. The second half of the presentation will focus on a case study regarding particle size analysis in support of air quality testing. This will walk the attendee through the process of sampling, selection of the most appropriate technique, sample preparation, and interpretation. Ideally at the end of this presentation, the attendees should have a broad understanding of the considerations that go into particle size distribution analysis and be able to interpret and apply analytical data to their specific industries.