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Integrating 180° DLS into on line pharmaceutical processes

Dynamic Light Scattering (DLS) is a tool for determining particle size distributions in fine particulate material suspensions, micro-emulsions and nano-scale matter in general. Usually optical arrangements in lower angles are used that demand heavy dilution of samples. Backscattering, however, allows for considerably higher concentrations and is the right choice for concentrated samples which incur in processes. Furthermore, the 180° backscattering is especially suitable for direct in-line use in reactors, because the handling of the measurement probe head with a diameter of 8 mm is just as easy as a pH head. A probe sheath effectively shields the Brownian motion from the process fluidics. At higher concentrations, where particle-particle interactions are present, on-line systems with automated dilution can be used but with dilution comes the potential aggregation problems due to Chemistry. By not needing dilution in all cases DLS has finally arrived as an automatized tool for process analytics in the nanometer range of Pharmaceuticals and Biotech.

Biography

David Pugh is a chemical engineer who graduated from the Chemical engineering department of Aston University in Birmingham, UK. He has been involved in Gas, liquid, Surface Area and Particle size analysis for more than 30 years. Currently his main expertise is in the particle size analysis and zeta potential measurement of suspensions, dispersions and dry analysis of numerous commercial products especially in the pharmaceutical and Biotech sectors. His work in bringing particle size characterization out of the laboratory and into the production process via measurement on line in the granulation and micronisation processes will improve pharmaceutical product quality and understanding of the process with the added advantage of reducing waste.

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