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Integrating 180° DLS into on-line pharmaceutical processes and high-throughput robotics**Thomas D Benen**

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Dynamic Light Scattering (DLS) is a prevalent tool for determining particle size distributions in fine particulate material suspensions, micro-emulsions and nano-scale matter like proteins and drug delivery particles. 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 cap effectively shields the Brownian motion from the process fluidics. At higher concentrations, where particle-particle interactions are present, on-line systems with automated dilution are in use. The external control of our DLS measurement software moreover allows for using robots in High-Throughput Screening (HTS) and fully automated formulation stations. Those work stations, equipped with liquid handling and parallel reactors, perform programmed formulation steps like mixing, stirring, heating and shaking. Apart from the aforementioned particle size distribution, rheological attributes and spectroscopic measurements are also included. Thus DLS has finally arrived as an automatized tool for pharmaceutical processes and HTS.

Biography

Thomas D Benen has completed his PhD at the University of Hamburg and Postdoctoral Research at the University of Regensburg, investigating the formation of viral particles. He has worked for some of the major players of the particle characterization industry like Malvern Instruments and NanoSight Ltd. At Microtrac GmbH, he is responsible for the business in the D-A-CH region. He is delegate of the ISO group TC24 committed on the development of international standards for particle measurement.

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