

THE EMERALD CONFERENCE

Produced by MJBizScience

February 27 - March 1, 2022
www.TheEmeraldConference.com

Droplet Size Analysis of Emulsions and Nanoemulsions

Speaker: Mark Bumiller, Technology Manager, Entegris, Inc.

Abstract: The increase in beverage-based cannabis products has created interest in formulating and manufacturing stable oil in water emulsions. The droplet size of the oil phase is perhaps the single most important physical parameter used to characterize the state of the emulsion. Various analytical techniques are available to determine emulsion droplet size, with each having specific advantages depending on the size range and ultimate goal of the analysis. This presentation will cover the range of available techniques with a focus on formulating, creating, and characterizing nanoemulsions.

Several different formulations of CBD oil emulsions were created and tested using dynamic light scattering (DLS) to measure the mean size and zeta potential (surface charge) of the oil droplets. The larger size droplets, or tail of the distribution, were analyzed using single particle optical sizing (SPOS). These examples will highlight best practices for both using these techniques and reporting results. Guidance on practices and reporting options from ISO standards and existing pharmaceutical tests will connect the cannabis industry to existing norms followed by other industries.