



Covalent Academy Episode 7 Q&A

## Particle Analysis for Industrial Product Success

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**01**

Q: Can you talk a little bit about the ability of DLS measure PSD's of similar samples. If there is a bimodal suspension, how different do the particles need to be for DLS to be effective?

DLS is able to differentiate bimodal suspension if one population of the particles are at least three times bigger than the other population in the suspension.

**02**

Q: For the same sample, if you measure with DLS, laser diffraction and SEM, would the size be comparable? If not, what is the reason?

Particle size measured by SEM should overlap with particle size distribution curve measured by laser diffraction. Particle size measured by DLS should be slightly bigger than that measured by SEM and laser diffraction. This is because hydrodynamic diameter measured by DLS refers to the diameter of hydration sphere for the particle, which includes actual particle and the solvent layer surrounding the particle.

**Q: What standards do you use and how you use them?****03**

For DLS, we use the 220 nm NIST traceable polystyrene particle size standard provided by Anton Paar for periodic instrument performance check. This standard is a liquid suspension and can be directly transferred to cuvette for DLS measurement.

For Laser Diffraction, we use the 10-100  $\mu\text{m}$  NIST traceable polydisperse particle size standard provided by Anton Paar for periodic instrument performance check. This standard is a dry powder. It can either be directly used for dry dispersion measurement or dispersed in distilled water for wet dispersion measurement