



How to Create Thin Film Coatings with Controlled Packing Density

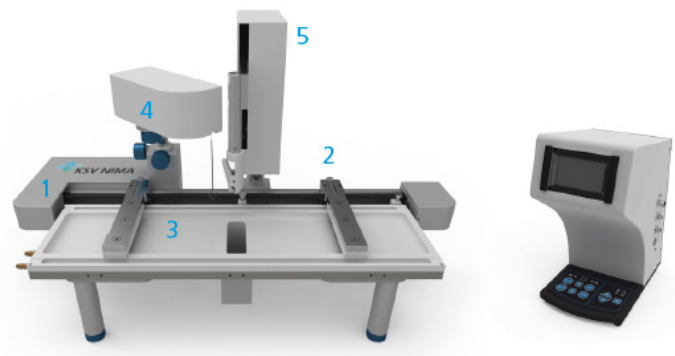
Coatings and thin films made from nanoparticles are gaining recognition and use in various products and applications including **displays, sensors, medical devices, energy storages and energy harvesting**. The challenge to achieve a homogenous coating fulfilling the requirements of optimized packing density, particle organization and film thickness is well-known. The performance and efficiency for these types of application are dependent on the coating characteristics.

Sophisticated Thin Film Technology

One of the most sophisticated techniques for creating thin films and coatings of nanoparticles are [Langmuir-Blodgett \(LB\)](#) and [Langmuir-Schaefer \(LS\)](#).

The film is created by depositing material on an aqueous subphase confined in a shallow chamber called trough top (3). The monolayer can then be compressed with the help of a set of barriers (2).

The surface pressure thus the packing density is controlled via the pressure sensor (4) of the Langmuir Trough.



Increase your coating quality by observing your nanoparticle layer

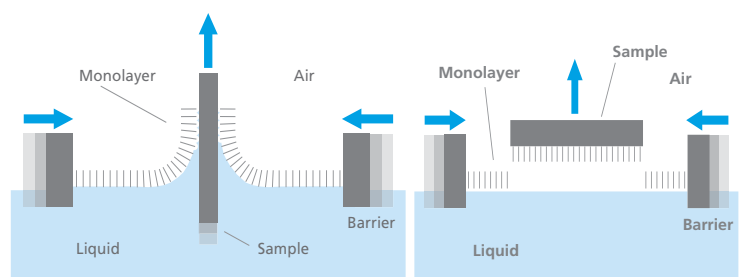
The combination of a Brewster Angle Microscopes (BAM) and your LB or LS instrument enables visualization and observation of the nanoparticle layer.

The analysis is done prior to deposition to ensure optimal quality of the coating. Analyzing the layer structure and film homogeneity prior to deposition saves measurement time and enables better coatings.

Vertical and Horizontal Controlled Coating

In the case of [Langmuir-Blodgett \(LB\)](#) deposition the sample is moved vertically through the monolayer. While in the case of the [Langmuir-Schaefer \(LS\)](#) method the sample is brought to the interface horizontally.

Langmuir films can be transferred to solid surfaces with preserved density, thickness and homogeneity of the sample.

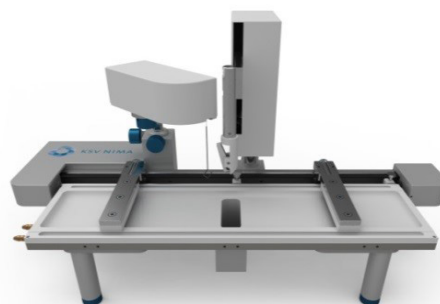


KSV NIMA Thin Film Coating Solution

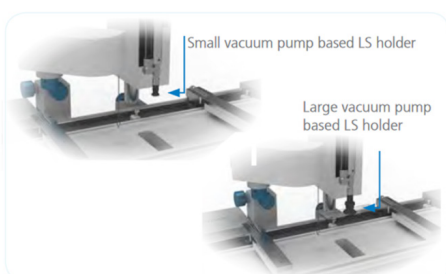
Powerful tool for nanoparticle coating creation

Main benefits of using KSV NIMA Thin Film Coating Solution

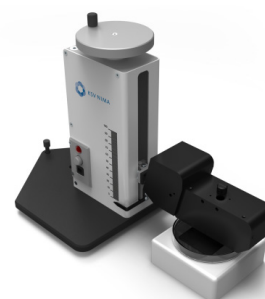
- Precise control of the monolayer (thin film) thickness and packing density
- Homogeneous deposition over large areas
- Enables multilayer structures with varying layer composition
- Deposition can be made on any kind of solid substrate
- Brewster Angle Microscope ensures molecular layer quality prior to the deposition



KSV NIMA Langmuir-Blodgett Medium Trough



Langmuir-Schaefer holders



KSV NIMA MicroBAM

To learn more about the KSV NIMA Thin Film Coating package, please contact your local sales representative or visit www.biolinscientific.com/KSVNIMA



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