



# Nanoparticle Monitoring

## Application Note

### Nanoparticle

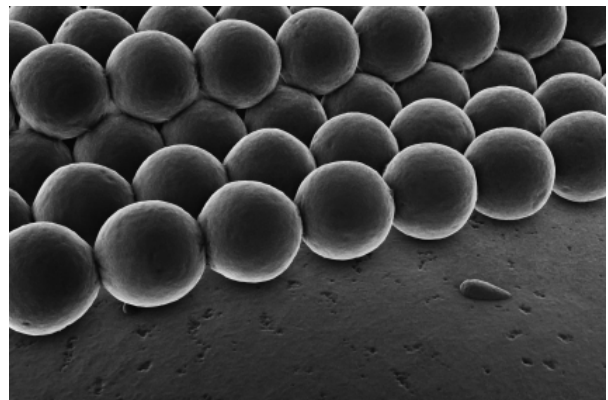
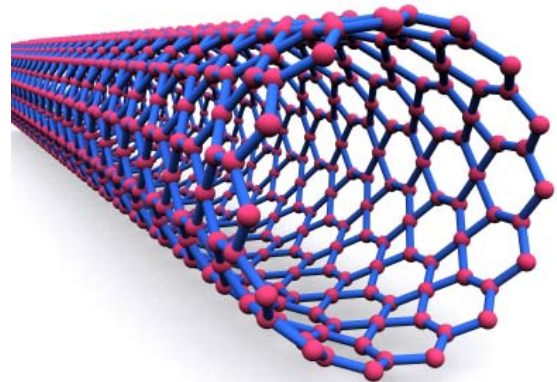
Nanoparticle research is currently an area of profound scientific interest due to its wide variety of potential applications and future implication in biomedical, optical and electronic fields.

### Increasing importance of Nanotechnology

Nanotechnology involves developing new materials with dimensions on the nanoscale to investigating possibility of directly control matter on the atomic scale. Nanotechnology is a very diverse, ranging from extensions of conventional device physics to completely new approaches based upon molecular self-assembly. Nanotechnology is significant due to its superiority upon comprehension, use, and control of matter at magnitudes of approaching atomic levels, with which to manufacture new substances, instruments, and frameworks.

Molecular manufacturing is an emergent diversity of technologies in which medicine and engineering function together with physics and chemical science gear to many brand new possibilities within the medical arena such as research to vaccine formation, wound regeneration, skin care, narcotic countermeasures and chemical and biologic detectors.

The future of nanotechnology may include huge task forces of medical nanorobots tinier than a cell drifting through human bodies removing bacteria, cleaning blocked arteries, and undoing the damage of aging. This key functionality would permit medical personnel to analyze patients' heart attacks much quicker than current tests.



## IAQ and Nanoparticle Health Risk

Indoor air quality degradation due to energy efficiency efforts is the most problematic concern for particulate contaminants as they have clearly demonstrated health impacts and due to the large gaps in the measurement science for ultrafine particles. Particles in general, especially ultrafine particles, are known to be cause health issues such as lung damages with respect to asthma and other respiratory diseases.

To solve the gaps in the measurement science needed to understand indoor levels of ultrafine particles and the associated exposures to building occupants, Kanomax USA offers a handheld condensation particle counter Model 3800. CPC 3800 can trace particle sizes as small as 0.015 to 1.0 micrometers. This handheld instrument is perfect for identifying nanoparticle sources, which offers more accurate data to IAQ investigation in order to prevent future human health risks.

## Evaluating Exposures to Nanoparticle

In Approaches to Safe Nanotechnology, NIOSH recommends direct-reading instruments and filter sampling with lab analysis to obtain particle number, size, and shape, degree of agglomeration, and mass concentration of elemental constituents in nanoparticles. Direct-reading instruments include both optical particle counters and condensation particle counters such as the Kanomax 3800.



Handheld Condensation Particle Counter  
Model 3800



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