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A Quick Test Kit to Detect Nanoparticles in Fluids

Nanoscience is widely used today across a diverse product array. Applications such as food containers for improved product freshness, textile coatings for impact minimization, battery technologies for increased product life, cosmetics and genetic screening for drug compatibility are examples of commercial products that use nanotechnology.

Nanotechnology is conducted at the nanoscale, which is between 1 to 100 nanometers. As an example, a human hair is about 75,000 nanometers wide. While nanomaterials hold great promise, their effects on the population and the environment are not well understood. Complicating this, currently available methods for the detection of nanomaterials is time consuming, expensive and requires thorough staff training on the use of test instrumentation. Therefore, there is a need for a fast, portable and accurate method to detect the presence of nanoparticles in fluids.

Researchers at Arizona State University have invented a kit to quickly and accurately detect the presence of nanoparticles in compound samples from such sources as oceans, rivers, lakes, waste water, and biological fluids. The kit uses a rapidly dissolving powder that is mixed with the fluid sample to be tested. A change in color upon mixing is seen within minutes if the fluid sample contains nanoparticles. Widespread use of this test kit is anticipated to address the safety and sustainability of ground and surface water, ongoing monitoring of nanoparticle concentrations in industrial settings, as well as human and environmental exposure to engineered nanomaterials.

Potential Applications

- Water Testing for Safety and Ongoing Monitoring
- Cosmetics
- Pharmaceuticals
- Batteries and Energy Storage
- Screening Kit to Monitor the Presence of Nanoparticles in Commercial, Environmental or Biological Samples

Benefits and Advantages

- Rapid Results –a color change to indicate the presence of nanoparticles in samples occurs within minutes
- Portable – lightweight, compact instrumentation can be taken on location or integrated into companion test devices
- Accurate – results demonstrate accuracy in the parts per billion (ppb) range
- Flexible – offers results from complex fluid samples such as tap water, river

water, waste water as well as biological samples, anticipated use across various nanoparticle classifications

For more information about the inventor(s) and their research, please see:

[Dr. Paul Westerhoff's Directory Page](#)