

## Nanoparticle Toxicity

Newspapers have been reporting on a new technology referred to as Nanotechnology. This field deals with ultra fine particles less than 100 nanometers in size. Current research has begun to focus closely on the toxic effects of these nanoparticles.

The use of nanoparticles to create innovative or improved products is new. The presence of nanoparticles in the ambient air is not. It has been reported that typical urban PM-10 dust is comprised of up to 50% by mass of combustion derived, ultrafine carbon centered particles with associated metals. Imagine what the percentage is behind a diesel bus or truck or at a construction site where unfiltered diesel exhaust chokes the nearby workers. Other sources of non manufactured nanoparticles include welding, soldering, candles, tobacco smoke, cooking and many more.

Animal research is beginning to show that ultra fine particles may create unique problems in the lung. It appears from various animal studies that nanoparticles create inflammatory responses that are greater than what would be expected if the exposure was due to larger particles of equal mass and composition. On the bright side, nanoparticles of different composition react in different ways so toxicity will vary.

There is not enough information to draw any firm conclusions about the toxicity of nanoparticles at this time. More research is needed. Cashins & Associates, Inc. is closely tracking this emerging technology. For more information about nanoparticles go to [www.cdc.gov/niosh/topics/nanotech/](http://www.cdc.gov/niosh/topics/nanotech/).