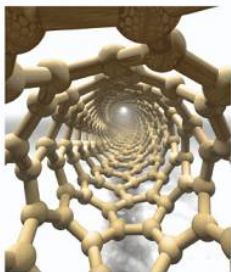


Are Nanotechnology Products Safe?



In general, yes

Although the existing toxicological methods are appropriate to assess many of the hazards associated with the products and processes involving nanoparticles, they may not be sufficient to address all of them. Even though products based on non-metal materials are considered safe in humans, considerable hydrophobicity of fullerenes and carbon nanotubes can be a major factor in the “biopersistence” of these compounds and should be carefully studied. In general, nonphysiological or pathological effects have **not** been observed in humans following short-term exposure to nanomaterials and should be considered safe.

Nanoscale materials present regulatory challenges similar to those posed by products using other emerging technologies. These challenges may be magnified because nanotechnology can be used in, or to make, any FDA-regulated product, where properties of a material relevant to the safety and efficacy of the products might change repeatedly. The emerging and uncertain nature of the science and the potential for rapid development of applications for products highlight the need for timely development of a transparent, consistent and predictable regulatory pathway.

Dr. Arkesh Mehta, PhD is CEO of Chikujee Therapeutics, in Sparks, MD, a nanoparticle based targeted drug delivery platform for cancer chemotherapeutics.

Yes

New and improved methods to gauge the extent of nanoparticle exposure and its consequential repercussions need to be developed. Instead of moratoriums on nanotechnology research and products, active ways to efficiently guard against the malicious use of this technology must be explored. The wide spectrum of nano products makes regulatory monitoring difficult but not impossible.

Human and environmental hazards should be studied in much more detail, as should the technology’s economic and social implications. Most importantly, the science of nanoparticles needs to be fully exploited and this cannot be done unless regulatory concerns are effectively addressed and researched. The federal government must do more to ensure the safety of nanotechnology. Assigning more resources to regulatory agencies such as EPA and FDA would be a good start. Nanotechnology awareness needs to increase so the public can be involved in decision making. Long-term effects of nano products need to be analyzed. There is much work to do in this field.

A nano world is the next revolution. Nanotechnology products have more than their fair share of risks; however, to ignore their potential for fear of possible danger would be a disservice when potential positive impact could be astounding. The risks need to be understood on a case-by-case basis before we dismiss the technology itself.

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