



Advantages and disadvantages of nano-medical materials and devices

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Abstract

Nano-electronic devices have positive and negative advantages, as some countries have launched studies on this technology, and other countries have established research and studies centers and universities dedicated to nanotechnology, and commissioned a group of distinguished experts to study this technology. Thousands of years ago, humans intended to use nanotechnology. For example I use in the steel and rubber industry. They are all based on the properties of atomic groups of nanometers in random formations. It is distinguished from chemistry in that it does not depend on the individual properties of molecules. The first to some distinct concepts in nanotechnology (preceding but using this name) in 1867 writer James Maxwell when she proposed the idea of an experiment Small entity Maxwell defines the devil from the processing of individual particles. In the 1920s, Irving Langmuir and Catherine Blodgett introduced the concept of a monolayer system, i.e. a single atomic layer or layer of matter with a thickness of atomic scales. Langmuir won the Nobel Prize in Chemistry for his work.

Keywords: NANO electronic, nano device, device, advantage, disadvantage

Introduction

Nanotechnology is a field of applied and technical sciences covering a wide range of topics. Standardizing the main topic is the control of any order of magnitude smaller than a micrometer, as well as the manufacture of the same devices along this scale. It is a highly interdisciplinary field, taking advantage of fields such as organ gum science, physics, and chemistry [1-3]. There is much speculation about what new science and technology might result from these lines of research. Some see nano-marketing as a term describing pre-existing research lines applied to sub-micron size.

Despite the simplicity of this definition, nano-high includes various areas of investigation [4-6].

Nanotechnology permeates many fields, including resins, chemistry, biology, and applied physics. It can be considered an extension of the sciences in the list. You can either reformulate the existing sciences using the latest and most modern [7-10] means.

Disadvantages of Nano-electronic Devices or Technologies

Nano-particles are so small that they can infiltrate behind the human body's immune system, they can also slip through the membranes of skin and lung cells, and what is more worrying, they can cross the blood-brain barrier. In 1997, a study at Oxford University showed that nanoparticles of titanium dioxide in anti-sun ointments damaged the DNA of the skin [11-13]. And a study last March from NASA's Johnson Space Center showed that carbon nanotubes are more harmful than quartz dust, which causes silicosis, a deadly disease that occurs in the workplace. As well as several types of cancer cells appear in the body and malignant tumors due to devices or nanomaterials., Nanotechnology manipulates matter at the atomic level to create materials, devices, or systems with new properties or functions [14], with potential applications in energy [15], healthcare [16], industry [17], telecommunications, agriculture, consumer products, and other sectors. [18-22]., Nanomaterials have at least one fundamental dimension below 100 nanometers, and are likely to have different properties than those of technically useful bulk components. Classes of materials that make up nanoparticles typically include elemental carbon, metals or metal oxides, and ceramics. According to the Woodrow Wilson Center, the number of consumer products or product lines incorporating nanomaterials increased from 212 to 1,317 from 2006 to 2011. Global investment in nanotechnology increased from \$432 million in 1997 to approximately \$4.1 billion in 2005. Because nanotechnology is a recent discovery, the health and safety effects of exposure to these nanomaterials, and what levels of exposure might be acceptable [26-28], are not yet fully understood. Research is currently being conducted on handling nanomaterials, and guidelines have been developed for some nanomaterials.

As with any new technology, initial exposure is expected to occur among workers conducting research in laboratories and experimental facilities, so it is important that they operate in a manner that protects their health and safety [29, 30]. Nanotechnology, especially used in materials, has a terrifying face as it can raise the possibility

of manufacturing weapons with a terrible effect. One that can be carried in one very handbag can kill 50 billion people, which is enough to kill every human on Earth. Hand weapons of all kinds will be much More powerful than before, and their bullets may be able to self-track the victim.

The risks of Nano-electronic Devices and Materials

There are disadvantages of using nanotechnology that may cause the emergence of malignant tumors when those who deal with it directly. This is due to the danger of materials manufactured using nanotubes to human health and safety, and their ease of entry through the pores of the skin or through inhalation due to their microscopic nature. And if they enter the body, their nature is difficult to get rid of as there is no medical treatment for them. It is necessary to study the primary components of cells and the pathway of nanometric elements inside cells, and to know their properties using electron microscopes. The full life cycle of these nanoparticles must be evaluated, including the process of their manufacture, storage and distribution, in addition to their application and safe disposal. In addition, the effects on humans and the environment may vary and change during many stages of its life cycle and according to its path in animal and plant cells and the negative effects it may cause.

Therefore, although many researches have been conducted in the field of using nanotechnology in agricultural applications in a different way, the ADF has been studying the path of these molecules inside animal and plant cells for some time to know their side effects, and it has not yet approved the use of this technology in the field of animal and poultry nutrition. The risk management system consists of three parts. The first is the identification of hazards and includes identification of the health and safety concerns that exist for both nanomaterials and their corresponding bulk materials ^[31]

The advantages of nano-electronic devices and nanomaterials

Nano-electronics have a wonderful future through the nano-revolution of devices and technologies that will be used in the future ^[32-34], including:

Nano materials: Carbon nanotubes, light materials that can revolutionize the design of cars due to their strength and ability to conduct electricity and heat.

Nano robot: The next stage in miniaturization could lead to the manufacture of microscopic actuators or robots to help study biological cells and systems, as well as fibers.

Micro Vehicles: Tiny vehicles that can be developed for deep space, orbit and climate research or exploration of moving surfaces.

"I think in the short term we will see a gradual increase in progress," said Scott Mays, president of the Foresight Institute in Palo Alto, California. It should be noted that this institute is a non-profit organization whose goal is to educate the public regarding the results of advances in nanotechnology. "Do not expect huge leaps in nanotechnology at the moment, but rather gradual increases - which are already beginning to appear in the areas of sensors and even commercial products from cosmetics to sports equipment," Mays added. He stated that the Foresight Institute is currently examining how nanotechnology can address a range of challenges facing humanity today. In addition to fighting infectious diseases ^[35], treating cancer, and providing clean water for all, among the top 10 list of issues is the provision of cheap spaceflights into space. It is difficult to say that a particular application is more important than others. The continued success in harnessing scientific research in the service of economic and industrial development and technological innovations through drawing up effective and comprehensive scientific and technical policies will have a good economic return for societies. The idea of using nanotechnology is to rearrange the atoms that make up the materials in their position. If we rearrange the atoms in silica and add some few elements, we can manufacture computer chips. Nanotechnology has opened new horizons in various areas of life, Figure (1).



Fig 1: Nano-Network Devices

Conclusion

Based on the review of the Material Safety Data Sheet, on the peer-reviewed literature, and on guidance documents on the materials. For nanomaterials, toxicity risks are the most important, but dust explosion risks may also be relevant. The second part is exposure assessment, which involves identifying the actual routes of exposure in a particular workplace, including a review of the places and tasks that are likely to cause exposure. Part III Exposure Control involves establishing procedures in places that minimize or limit exposures, according to the risk control hierarchy. Continuous validation of risk control can occur by monitoring airborne concentrations of nanomaterials using standard industrial hygiene sampling methods, and a workplace health monitoring program can be developed

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