

APPLICATION OF NANO MATERIALS IN CARBON NANO TUBES,ETC.

WHAT AND WHY?

- Nanomaterials : objects which have at least one of their external dimensions in nanometer range
- It opens new avenues in material properties which macroscopic materials do not share
- Dividing matter into smaller pieces increases the ratio of exposed surface area to volume which has dramatic impacts in their usage as catalysts. For ex- cheaper nano-substitutes to platinum and palladium with the same efficiency.
- Nanotechnology is helping to considerably improve, even revolutionize, many technology and industry sectors: information technology, energy, environmental science, medicine, homeland security, food safety, and transportation, among many others.

- ### What are we going to discuss today?
- Application of Carbon Nanotubes in Automobiles
 - Biological applications of Nanomaterials
 - Pros of nanotechnology in the cement industry
 - Advantages and disadvantages of nanoparticles

CARBON NANOTUBES IN

The use of a carbon fibre – carbon nanotube body will decrease the car's weight and will also improve performance. The body could also be produced with carbon nanotube epoxy and this will give the body strength, stiffness and saving properties.

Carbon nanotube composite materials could be used for the windows, wind deflection. This will add good electrical conductivity properties and allow the windows and conductors to be connected to a heater and the car to drive easily and quickly.

Image courtesy of Jim Davis from JJAAC

Carbon nanotubes are a general name for hollow carbon tubes and nanotubes are a special condition that exist in a carbon nanotube structure. It might be possible to produce carbon nanotubes in a carbon nanotube using catalyst and reducing green house gas emissions.

Carbon nanotube carbon-carbon composites have already been developed for making sports vehicles in aerospace industry. This feature will add for their weight loss and improved performance.

Carbon nanotubes used in B&B&C could reduce the engine weight loss and will also improve the fuel efficiency. Carbon nanotubes could be also used in fuel cells and batteries to reduce and improve energy by alternative energy.

A nanotube pressure gauge could be installed by pressure or pressure in the force. The gauge could be very accurate and precise due to the unique electrical and mechanical properties of nanomaterials.

BIOLOGICAL APPLICATIONS

Optical Imaging

Advantages:

- High sensitivity
- Multicolor imaging
- Activatable

Disadvantages:

- Low spatial resolution
- Poor tissue penetration

Detection: Fluorescence

Magnetic resonance Imaging

Advantages:

- High special resolution
- No tissue penetrating limit

Disadvantages:

- Relatively low sensitivity
- High Cost
- Long imaging time

Detection: Magnetic field (Radio wave)

Ultrasound Imaging

Advantages:

- Real time
- Low cost

Disadvantages:

- Low resolution
- Operator dependent analysis

Detection: Ultrasonic waves

Radiomucleide Imaging

Advantages:

- High sensitivity
- No tissue penetrating limit

Disadvantages:

- Radiation risk

Detection: Ray



