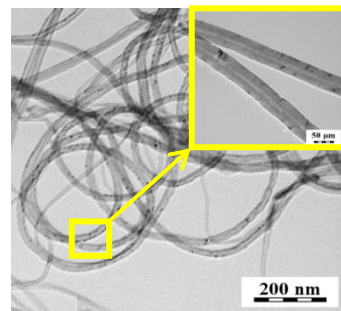


CARBON NANOTUBES



Carbon nanotubes (CNTs) and carbon nanofibers (CNFs) have attracted intensive research interest owing to their superior chemical, electrical, and mechanical properties, rendering them suitable candidates for various potential applications, in the area of composites as reinforcements, energy storage, electronics and sensors.



Stable
dispersion of
CNTs in water



Since their discovery in 1991 by Iijima¹, single wall carbon nanotubes have stimulated a great deal of activity in both the global research community and industry, and have inspired much investment in manufacturing methods, characterization and application development. The reasons for this are quite clear, given the remarkable properties these materials possess and the diversity of distinct species, each with its own unique variations in those properties.

Applications

- Antifouling – anticorrosive coatings
- Polymer nanocomposites
- Advanced carbon nanotubes structures
- Reinforcements in metal-metal joints
- Energy storage (e.g. supercapacitors)
- Microelectronics (e.g. sensors)
- Thin films technology



..Chemical Vapor Deposition

Chemical vapour deposition (CVD) is by far, the most dominant and inexpensive method for CNTs synthesis compared to laser ablation and arc discharge.

It offers several advantages such as capability to produce dense and uniform deposits, reproducibility, good adhesion, adjustable deposition rates, ability to control crystal structure, surface morphology and orientation of the CVD products, reasonable cost and wide scope in selection of chemical precursors.