

# Carbon Nanotubes: Building Blocks of Nanotechnology Development

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## Abstract

Carbon nanotubes' (CNTs) has become the building blocks of nano technology for energy system development, because of its astonished mechanical, energy storage and unique electronic properties. These ensure its relevancy for applications in enormous areas presently and in the future. Areas of applications include field emission devices, high-strength composition, sensors, nanobiomedicals, nanosystems, nano energy storage system and other related fields. This report reviewed CNTs' properties and how they are related to their physical and chemical structure. The design criteria for this material were critically reviewed which includes manufacture and cost savings. The growth of carbon nanotubes and manufacturing to its appropriate form such as purification, characterization and functionalization were comprehensively revised and reported. The current and future areas of applications of CNTs were identified; examples are nanoelectronics, scanning nanomicroscopy, biomedical sensors, nano energy storage system etc. This report is concluded with the progress made so far since CNTs were discovered and the potential challenges, potential solutions and it significant for meeting future energy needs among others.

**Keywords:** Carbon Nanotubes, energy storage, design consideration, applications