

Nano-technologies and Nano-materials for civil engineering construction works applications

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Abstract

The applications of Nano-technologies and related Nano-materials have observed the possibility of using such materials in general engineering applications, spanning a range of topics from structural engineering, geotechnical reinforcement, and building materials. The objective of this paper is state an overview of Nano-technologies applications in civil engineering in general and exemplified the usage of Nanomaterials in some applications, where there are many nanoscale methods that use nanomaterials, which have proven their efficiency when used in construction applications. Metal structures of light weight and stronger in terms of withstanding different conditions, and coating materials with technical specifications such as high temperature tolerance and moisture resistance, cement material added to some materials that improve some chemical properties, materials included in reducing the rate of thermal transfer and increase the insulation of the basic properties. The role of nanomaterials in engineering applications.

Furthermore, it has been proved that adding some Nano-materials to the constricting essential materials like cement or steel will improved their main properties like increasing strength performance, durability, and many other properties.