APPLICATION OF NANOTECHNOLOGY IN CONCRETE

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ABSTRACT

Concrete is subjected to new technology; properties like durability, strength, ductility, cleanliness, and water repellency all improve greatly. In particular, nanotechnology should be explored within Civil Engineering to lessen maintenance costs of concrete structures and increase material reliability. This paper will examine the chemical and physical makeup of nano-treated concrete and how certain nano-particles are incorporated into mixtures. The paper will examine the specific benefits of four main types of nano-particles: carbon nanotubes, titanium dioxide, nano-silica, and fly ash. The paper will also address the ethical considerations of concrete and how the application of nanotechnology can solve these problems. Implementing nano-concrete in construction will potentially have a multi-billion dollar impact on the economy which will be explained in further detail in the paper.

KEYWORDS: Civil Engineering, Concrete, Construction, Nano-Silica, Nanotechnology, Nanotubes, Titanium Dioxide