

K-3 Nanotechnology and surface treatment

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ABSTRACT

Nanotechnology has been making the traditional Constr. Build. Mater. more durable and multi-functional in last decades. This presentation first gives a review of the nanomodification of cement-based materials of making stronger, greener and more durable concrete structure. Then, based on the characteristics of SiO₂-based nanomaterial, its utilization for surface treatment of hardened cement concrete is reported. After the recognition of the features of SiO₂ nanoparticles for surface treatment, functional nanocomposites of hybrid structures for surface treatment are designed and used for water proofing, photo catalysis, microwave shielding, etc. Nanotechnology shows the potential of making the traditional concrete a meta-material through its addition into concrete or, more practically, the surface treatment of hardened concrete.