



## **Durability Study on Nano Concrete**

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**Abstract :** The use of nano materials in concrete is gaining increasing attention in the construction industry. Studies have shown that concrete containing nano particles has demonstrated increased strength, durability and reduction of pores in the concrete due to the pore filling properties of the nano materials. This also results in increased resistance to corrosion of the steel reinforcements. Hence, the nano materials are useful to improve the life of the building. The use of large quantity of cement produces increasing CO<sub>2</sub> emissions and also consequents the greenhouse effect. The nano materials are used in order to reduce the cement content in the concrete mix. Nano material represents one of the most outstanding advances in concrete technology during the last decade. Due to its specific properties, nano materials may constitute the significant improvement of the quality of the concrete structure and open up new fields for the application of concrete. Nano material is spread all over the world with a steady increase in number of applications. Nano materials are intentionally produced and designed with very specific properties related to shape, size and surface properties. The main use of nano materials in concrete is to increase the strength. Nano Silica produces high compressive strength concrete. It also provides high workability with reduced water cement ratio.

**Keywords :** Portland Pozzolana Cement, Nano Silica, Polycarboxylate, Hydrochloric Acid, Sodium Hydroxide, Sodium Sulphate.