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Improvement of corrosion resistance of concrete element by using nanotechnology

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Fly ash is increasingly being used as a partial substitute in concrete mixtures. Thermal power plants produce fly ash, which seems to be a wasted item. In India, thermal power plants create over 105 million tonnes of fly ash each year, with less than a third of it being used. The vast majority of generated fly ash is of the Class F variety. The adoption of these materials would alleviate the current disposal issues that thermal power plants and industrial facilities confront. Fly ash is commonly a term for cement substitute, for concrete additive, and in cement manufacture. Various amounts of cement replacement material are used in each experimental category, ranging from 0% to 90% in multiples of ten. For all mixtures, the workability is kept constant. The use of fly ash at greater percentages significantly affects the strength of concrete. The addition of 2 to 5% nano silica is being used to compensate for the loss of strength. The density and strength of fly ash concrete containing nano-SiO₂ are increased. Flexural strength is increased in high-strength concrete containing nano-SiO₂. Corrosion resistance characteristics are found out for twenty-eight days curing period for concrete cylinders with no silica additive and also for cylinders with silica additive. Their results are analyzed and checked whether the addition of nano silica has any effects in increasing the corrosion resistance.

Topics

[Power plants](#), [Corrosion](#), [Cement](#), [Nanotechnology](#)