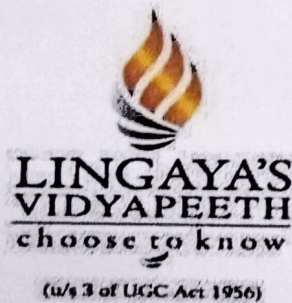


Use Of Microsilica In Concrete

**A Project Report Submitted
In Partial Fulfilment of the requirement
for the award of the degree of
Bachelor of Technology
In
Civil Engineering**

**By
Deepak Kumar
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**Under the Supervision of
Rameezut Tauheed
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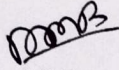
Department of Civil Engineering

**Lingaya's Vidyapeeth
Faridabad (Haryana)
Session 2018-2022**

Certificate

This is to certify that the project report entitled “Use Of Microsilica In Concrete” being submitted by **Deepak Kumar (18CE56L)** for the partial fulfillment of the award of the degree of **BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING** by Lingaya’s Vidyapeeth, Faridabad is a record of a bonafide work carried out by them under my supervision during the year 2022.

The contents of this report have not been submitted to any other University or institute for award of any degree or diploma.



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ACKNOWLEDGMENTS

DECLARATION

I **Deepak Kumar (18CE56L)** the student of Bachelor of Technology in Civil Engineering during session 2018-2022 at Lingaya's Vidyapeeth, Faridabad, Haryana, hereby declare that the work presented in this report entitled "**Use Of Microsilica In Concrete**" is the outcome of our own bonafide work and is correct to the best of my knowledge and this work has been undertaken taking care of Engineering Ethics.

It contains no material previously published without referring or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Deepak Kumar
Submitted by:

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ACKNOWLEDGMENTS

I would like to thank my guide, Rameezut Tauheed for his very valuable guidance, his support and his critical suggestions throughout the completion of our project.

It was a privilege to study under his supervision. His vision and broad knowledge played an important role in the project work. I also like to thank him for pushing me to the stage that I thought I could never accomplish.

Allow me to express my sincere gratitude to Dr Maniraj M, for his tremendous and selfless support in design of the project and time management skills while fabricating the product.

It is my great honor to have had the opportunity to work with these great minds and their remarkable characters. Their spirit of enthusiasm and commitment even in the times when we students found it hard to do is commendable.

Also, I appreciate the moral support of Aditya Pathak during my project work.

Submitted by

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Abstract

Concrete is the most versatile material due to the persistent and continuous demands made on concrete, Engineers are continually pushing the limits to improve its performance with the help of innovative chemical admixtures and supplementary cementitious materials like fly ash, silica fume, granulated blast furnace slag and steel slag etc. The use of large quantity of cement produces increasing CO₂ emissions and consequently the greenhouse effect. A method to reduce the cement content in concrete mixes is the use of silica fume which is an amorphous (non-crystalline) polymorph of silicon dioxide, silica. It is an ultra-fine powder collected as a byproduct of the silicon and ferrosilicon alloy production with an average particle diameter of 0.1 to 0.5 μ . The past investigations revealed that silica fume was an excellent pozzolanic material in producing High performance concrete (HPC).

Nano technology is one of the most promising areas of science. The use of nano materials in concrete is a new revolution. Nano materials like nano silica, nano titanium oxide, carbon nano tubes, nano alumina etc... which are presently used in concrete to modify its strength properties. In the present study Compressive strength of M50 grades of concrete with the use of micro silica (5%, 7.5%, 10%, 15%) with cement were studied. It was found from the experimental study that concrete composites with superior properties can be produced using micro silica.

In this project, we will consider the design strength and initial setting time of M50 concrete. Two samples will be prepared, one with using Silica as an admixture and other without it. The respective mix designs along with initial setting time, strength again along the period of time and various other interpretations will be compared for both the cases.

