



**AICTE Sponsored Virtual Conference
Sardar Patel International Conference
On**

“Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative”

22nd - 23rd December 2022

ORGANISED BY: - Bharatiya Vidya Bhavan's Sardar Patel College of Engineering, Mumbai, India.

In Association: - Bharatiya Vidya Bhavan's Sardar Patel Institute of Technology, Mumbai, India

About Conference

The aim of this conference is to provide an interdisciplinary platform for leading and young researchers, engineers, academicians, industrialists and practitioners working in the domain of Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative and Atmanirbhar Bharat. The conference would enable participants to disseminate their innovations and contemporary research in the field of Electronics, Electronics and Communication, Mechanical, Mechatronics, Information Technology, Computer Engineering, Civil Engineering and related fields. The conference will feature paper presentations and keynote speeches by eminent speakers who will focus on state-of-the-art development in the field of industry 4.0 like, green technology, lean manufacturing, Supply chain, innovative business processes, cloud deliver, network virtualization, network security, big data analysis, machine learning and prediction analytics, IoT, Blockchain and their recent trends in various verticals of engineering. This Conference will provide a forum for researchers from academia and Industry experts to explore the role of Industry 4.0 technologies in aspects of new business sustainability. Further Government of India has also launched initiatives known as Make in India and Atmanirbhar Bharat to encourage companies to manufacture in India and to make India sustainable. This conference also includes panel discussion to open new avenues to achieve these goals. The scope of conference will provide a common virtual platform where researchers, engineers, academicians and practitioners' confluence and cherish their research and innovations and deliberate upon futuristic research.

SCOPE: PAPERS ARE INVITED FROM ACADEMIA, TECHNOCRATS, RESEARCHERS AND STUDENTS IN THE FOLLOWING TOPICS

- Optical Communication
- Simulation Tools
- MEMS
- Embedded Systems And VLSI
- Nanotechnology
- Control and Instrumentation
- Power Electronics
- Solid State Devices
- Sensors and Imaging
- Manufacturing Technologies
- CAD / CAM / CAE
- Automation and Robotics
- HVAC
- Heat and Mass Transfer
- Logistics and Supply Chain Management
- Nano Technologies
- Smart Materials
- Renewable and Non-Renewable Energy
- Non-Destructive Testing
- Additive Manufacturing
- Artificial Intelligence
- Data Warehouse and Data Mining
- Cloud Computing
- Ios Technology
- Network Security and Cyber Security
- Next Generation Networks
- Biometrics / Forensic / Disaster Recovery and Management
- Geotechnical Engineering
- Transportation Engineering
- Environmental Engineering
- Water Resources Engineering
- Town Planning and Infrastructure
- Construction Engineering
- Cyber-physical systems (CPS)
- Assembly and Packaging
- Test and Reliability
- Advanced Technologies
- Multimedia Services and Technologies
- Mobile Computing
- Microwave Theory and Techniques
- Modulation, Coding, and Channel Analysis

Publication

SELECTED PAPERS WILL BE PUBLISHED IN SCOPUS INDEXED PROCEEDINGS.



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CERTIFICATE OF PARTICIPATION

PRESENTED TO :

Paper Code: 5157, Title of paper: "Effect of M-Sand and Cementitious Materials on Properties of Concrete- A Review"

Authors: 1. Jaydeep Chougale 2. Dr. Abhinandan Bage

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Effect of M-Sand and Cementitious Materials on Properties of Concrete- A Review

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Abstract. Sand is one of the primary components used in concrete. Use of river sand is banned/restricted due to environmental considerations. On the other hand, the rapid development of urban areas is increasing the demand of High Strength (HS) and High-Performance Concrete (HPC) for specialized constructions, like skyscrapers and other important structures. As a result, it is difficult to get River Sand (RS) in the required quantity. In concrete cement is the main binding material. Cement manufacturing plants are a substantial source of carbon footprint. The production of cement produces around seven percent of the global carbon dioxide emission. Likewise, the production cost of cement is high which results in the overall cost of the project. In view of above, it is necessary to look at use of materials which can replace the conventional materials used for concrete, especially for use in HS and HPC. The modern development necessitates use of new materials/ ingredients in concrete like cementitious materials, Manufactured Sand (M- Sand) that will enhance the concrete functionality. Utilizing M-sand along with cementitious ingredients such as Ground Granulated Blast Furnace Slag (GGBS), Nano Silica (NS) and Silica Fume (SF), etc. several studies have evaluated the durability and strength properties of concrete. This paper reviews the strength and durability characteristics of M-Sand, RS, cementitious materials used to create HS and HPC, which are evaluated using a variety of mechanical and durability tests.

Keywords: Strength, Durability, M-Sand, GGBS, Silica Fume

INTRODUCTION

One of the key ingredients in concrete is river sand. Use of the river sand is banned/restricted due to environmental considerations. Second, river sand is typically dug out from riverbeds and always has a high concentration of silt and inert elements, which has an adverse effect on durability and strength of concrete. [10][18].

Researchers began looking for a substitute for river sand that could be used in concrete after taking the aforementioned factors into account and the lack of availability of river sand. By crushing large hard stones, mainly rocks or granite, M- sand is produced. In 1989 Ahmed et al [1] Look into use of crushed sand as a replacement for RS. The findings of experimental investigation make use of M-sand and 10% stone dust as a preferential substitute for M-sand show that concrete with fine aggregates made of crushed basalt stone performed very well. Umamasheswaran et al [19] performed various tests on M100 grade concrete along with M-sand and RS at different ages, the results indicate that concrete containing M-Sand outperformed than RS. The primary binding component of concrete is cement, manufacture of cement makes up around 7% of all worldwide CO₂ emissions [3][21]. Numerous