

Moghul Sirajuddin

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Current Address:

The Ramco Cements Limited
Dry Mix Division, F-14, Sipcot Industrial Park
Sriperumbudur, Tamilnadu, India-602106

Permanent Address:

C2-308, Pulicat Nagar,
Sullurpeta, Nellore District,
Andhra Pradesh, India-524121

Educational Qualifications

2015 **Master of Science by Research (M.S.), IIT Madras, Chennai, India**
in Construction Materials, CGPA 8.8/10.0

Research **Plastic shrinkage cracking of concrete with mineral admixtures and its mitigation**

M.S. thesis under guidance of **Professor Ravindra Gettu** (IIT Madras)

- Investigated the influence of supplementary cementitious material on plastic shrinkage cracking
- Studied the effect of incorporation of fibers and shrinkage reducing admixture in reducing plastic shrinkage cracking
- Assessed the efficiency of curing compounds in mitigating plastic shrinkage cracking

2012 **Bachelor of Technology, Pondicherry Engineering College(PEC), Puducherry, India**
in Civil Engineering CGPA 8.3/10.0

Research **Manufactured sand as an ecological alternative to river sand**

Bachelors project under guidance of Associate Professor S. Govindaradjane (PEC)

- Study investigated the use of manufactured sand as viable alternative to natural river sand
- Developed various mix designs for different grades of concrete with river and manufactured sand
- Compared the mechanical and durability performance of the concretes with river and manufactured sand

Project **High-strength cementitious grout for post-tensioning applications**

Mini Project under guidance of Professor V.L. Narasimha (PEC)

- Formulated various high strength grout mixes of different binder systems based on particle packing method
- Evaluated the influence of different binder systems and binder fineness on the performance of the grout
- Studied different fresh and hardened properties of grout such as fluidity, bleed, setting time, shrinkage and compressive strength

Work Experience

2018 **Dy-Manager, The Ramco Cements Limited, Dry Mix Division, Sriperumbudur**

Nov 2018 – Till Date

Role Heading the quality team and leading research projects in collaboration with Ramco Research and Development Centre (RRDC)

Project **Evaluating the efficiency of different redispersible powders and cellulose ethers**

Main objective is to sort and filter different polymer additives that are available in the market based on their performance and to assess their techno commercial feasibility.

2015 **Scientist, Aditya Birla Science and Technology Company Pvt. Ltd. (ABSTCPL), Mumbai**

Oct 2015 – Oct 2018

Role Leading the industrial research projects to support UltraTech Cement & Concrete businesses of the Aditya Birla Group (ABG)

Project 1 **Improving 28-day strength of cement for ABG's Rawan cement plant**

The project is aimed at improving the strength of cement by utilizing pet coke as a fuel for clinkerization instead of coal, which ultimately leads to improved energy efficiency and promotes cost effectiveness.

Project 2 **Bagasse ash as a supplementary cementitious material for cement**

At some of UltraTech cement plants, the Landed cost of fly ash is equivalent to manufacturing cost of clinker, thereby making it uneconomical to produce portland pozzolanic cement. Using bagasse ash, has been proved as a technically feasible alternative to fly ash and commercialization is currently in process.

- Project 3 **High-strength lightweight concrete for structural applications**
Successfully developed high strength structural lightweight concrete of strength > 60 MPa at a density of 2000 kg/m³ for a smart city project.
- Project 4 **Optimization of dry mix formulations for maximizing the performance**
Optimized the percentage of polymer additives in the formulations of dry mix products such as tile adhesives, block adhesives, mortars and grouts to reduce the consumption of the raw materials. At the same time, to improve the performance and durability of the products.
- Project 5 **Perlite based fire resistant mortar for non-structural applications**
Fire resistant mortar has been successfully developed & demonstrated in the high rise buildings, to protect electrical cables in case of fire, by filling cable ducts.

2015 Research Associate, IIT Madras

May 2015 – Sep 2015

Worked as a research associate for the LC3 (Limestone Calcined Clay Cement) project under Professor Ravindra Gettu (IIT Madras)

- Studied the plastic shrinkage cracking behavior of LC3 cement
- Assisted the LC3 project team in investigating the mechanical and durability properties of concrete with LC3 cement.

Publications

- 2018 **Plastic shrinkage cracking of concrete with mineral admixtures and its mitigations** by Moghul Sirajuddin and Ravindra Gettu. Materials and Structures Journal, 51(2), pp. 1-10 (2018).
- 2017 **High strength structural lightweight concrete using sintered fly ash aggregates for structural applications** by Moghul Sirajuddin, Reetam Chaudhury, Hemantkumar Aiyer, Amit Chatterjee and Devendra Pande. 13th International Seminar on Cement and Building Materials, New Delhi, India.
- 2017 **Chemically reinforced perlite based fire resistant mortar for non-structural applications** by Reetam Chaudhury, Moghul Sirajuddin, Hemantkumar Aiyer, and Amit Chatterjee. 13th International Seminar on Cement and Building Materials, New Delhi, India.
- 2015 **Effect of the incorporation of the mineral admixtures and shrinkage mitigating ingredients on the plastic shrinkage of cracking** by Moghul Sirajuddin and Ravindra Gettu. International conference proceedings "CONCREEP-10", Vienna, Austria, pp. 1082-1089 (2015).

Awards

- 2016 Outstanding thesis award in Masters degree category at national level from Indian Concrete Institute

Skills

– **Experimental skills**

Hands on experience on the following materials testing/experimental techniques
X-ray diffraction (XRD), X-ray fluorescence (XRF), Brunauer-Emmett-Teller (BET), Scanning electron microscopy (SEM), Thermo-gravimetric analysis (TGA) and Differential Scanning Calorimetry (DSC)

– **Technology tools**

Programming languages : C and C++ Language
Softwares : AutoCad®, STAAD-Pro®

References

- Ref. 1 **Professor Ravindra Gettu**, Department of Civil engineering, IIT Madras
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- Ref. 2 **Professor Manu Santhanam**, Department of civil engineering, IIT Madras
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