

ISBN	978-93-88122-14-6
Website	www.veltech.edu.in
Received	09-May-2020
Article ID	NISDCE183

VOL	01
eMail	nisdce@veltech.edu.in
Accepted	24-May-2020
eAID	2020.nisdce.183

## DEVELOPMENT OF SELF CURING LIGHT WEIGHT CONCRETE USING LIGHT EXPANDED CLAY AGGREGATE (LECA) & CRYSTALLINE ADMIXTURE (CA)

Vinoth R<sup>1</sup> Vinod Kumar M<sup>2</sup>

<sup>1</sup> PG Student, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Tamil Nadu.

<sup>2</sup> Associate Professor, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Tamil Nadu.

**ABSTRACT:** Quite a lot of innovations in new types of concrete have been turned up worldwide to address the unique needs of the construction industry. Several new and innovative materials such as chemical admixtures, mineral admixtures and eco-friendly binders are being used to impart required quality to concrete to satisfy the needs of the construction industry. Apart from using these materials, it is essential to ensure proper compaction and curing to achieve high strength and durability to the concrete. The conventional methods of compaction such as hand rodding and mechanical vibration are used. These methods require more man power and time for construction and also may not be effective in structures congested with reinforcement. In order to make concrete with better surface finish, improved strength and durability, it is essential to impart self-compacting ability to concrete. Apart from compaction, curing is also equally important to achieve the designed strength and durability of concrete. Curing is the process of promoting the hydration of cement in the paste. Generally, curing is being done using conventional methods such as ponding, fogging, sprinkling and covering with saturated materials etc. These methods are seldom labour intensive, time consuming and expensive. Also, negligence in curing, paucity of water in arid areas, inaccessibility of structure and presence of contaminant are some of the reasons for promoting self-curing concrete. Curing compounds such as wax emulsion, acrylic emulsion, and chlorinated rubber based compounds; hydro carbon resins and polyvinyl acetate based compounds can also be used in the concrete to promote self-curing. These chemical compounds absorb water from atmosphere to promote hydration in concrete. However, there is a need to search for cost effective solutions to impart self-curing ability to concrete. Hence, an attempt has been made in the present work to study the suitability of Light Expanded Clay Aggregate (LECA) and Crystalline Admixture (CA) as a self-curing agent (by replacing coarse aggregate partially) and also to evaluate the effect of these materials on strength, durability and flexural behavior of Self-Compacting Self Curing Concrete (SCSCC).

Proceedings of the International E-Conference on Novel Innovations and Sustainable  
Development in Civil Engineering 2020

**Keywords:** *Light Expanded Clay Aggregate (LECA), Crystalline Admixture(CA), Self-Compacting Concrete (SCC), Control Mix (CM), Ordinary Portland Cement (OPC)*

This paper is prepared exclusively for International E-Conference on Novel Innovations and Sustainable Development in Civil Engineering 2020 which is published by ASDF International, registered in London, United Kingdom under the directions of the Editor-in-Chief Dr E B Perumal Pillai and Editors Dr. M Vinod Kumar and Mr. R. Saravana Kumar. Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage, and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s). Copyright Holder can be reached at [copy@asdf.international](mailto:copy@asdf.international) for distribution.

2020 © Reserved by Association of Scientists, Developers and Faculties [[www.ASDF.international](http://www.ASDF.international)]