

**Project PI:** Rajesh Kumar

**Project Title:** To Study the effect of Crystalline Admixture on the Physico- Mechanical, Microstructural, and Durability Properties of Concrete

**Name of Client:** M/s Pidilite Industries Limited, Kondivita Depot, Andheri-East, Mumbai, Ramkrishna Mandir Road, Kodivita Village, Mumbai Maharashtra, India 400059

**Objectives:**

1. To characterize the crystalline admixture by analyzing its particle size distribution, appearance, color, dry material content, and chloride and alkali content
2. To analyze the performance of crystalline admixture in M30 Grade of concrete, focusing on physico-mechanical properties
3. To evaluate the self-crack healing capability of crystalline admixture in concrete for cracks up to 0.5 mm width using optical Microscopy and Ultrasonic Pulse Velocity methods
4. To assess the compatibility of crystalline admixture with concrete admixture complying with IS 9103 and ASTM C 494 standards
5. To determine the effect of the crystalline admixture on concrete permeability by measuring the depth of water penetration under normal and high hydrostatic pressure at three
6. To investigate the durability-enhancing properties of the admixture, including:  
Reduction in drying shrinkage  
Resistance to chloride penetration (using ASTM C 1152 and NT Build 492)  
Resistance to sulfate expansion  
Performance against Alkali-Silica Reactivity (ASR) as per ASTM C 1260  
Resistance to accelerated carbonation (IS 516 - Part 2 Sec