

Enhancing Concrete Performance : A Review of Admixtures

Prerna Jadhav¹, Tejaswini Bhavsar², Kirti Bafna³, Sojwal Solanki⁴, Dr. Hiteshkumar Patil⁵

BE Students Department of , Civil Engineering^{1,2,3,4}

Assistant Professor, Department of , Civil Engineering⁴

R. C. Patel Institute of Technology, Shirpur

prernajadhav2678@gmail.com, tejaswinibhavsar15@gmail.com, kirtibafna03@gmail.com

sojwalsolanki@gmail.com, hitesh.patil@rcpit.ac.in

Abstract: *This study provides an overview of various mineral admixtures used to modify concrete properties. The research involves partially or fully replacing cement with different mineral admixtures, including fly ash, silica fume, rice husk ash, Ground Granulated Blast Furnace Slag, palm oil fuel ash, and metakaolin. The results show that each admixture yields distinct strength properties when added to concrete. The investigation presents a comprehensive analysis of the effects on concrete characteristics, such as compressive strength, split tensile strength, flexural strength, durability, and workability. This study provides an overview of various mineral admixtures used to modify concrete properties. The research involves partially or fully replacing cement with different mineral admixtures, including fly ash, silica fume, rice husk ash, Ground Granulated Blast Furnace Slag, palm oil fuel ash, and metakaolin. The results show that each admixture yields distinct strength properties when added to concrete. The investigation presents a comprehensive analysis of the effects on concrete characteristics, such as compressive strength, split tensile strength, flexural strength, durability, and workability.*

Keywords: GGBS, Fly ash, Metakaolin, Palm oil fuel ash, Silica fume, Rice husk ash, Marble Dust, OPA, BPA, Aluminium Waste Coconut shell Ash, wheat straw ash, Saw dust

