

Experiment Investigation to Study the Effect of Silica Fume on Physical & Chemical Properties of Concrete M-30 Grade

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Abstract: *This research delves into the effects of incorporating Silica Fume as a supplementary cementitious material on the physical and chemical properties of M-30 grade concrete. Silica fume was added in varying proportions 5%, 10%, and 15% to thoroughly examine its influence on several key performance indicators, including compressive strength, workability, and resistance to chemical aggression. The results reveal noteworthy enhancements in strength, durability, and resilience against chemical attacks, indicating that optimal incorporation of silica fume can significantly elevate the overall performance of concrete. These findings highlight the potential of silica fume as a valuable additive in the quest for higher-quality, longer-lasting concrete solutions. This research delves into the effects of incorporating silica fume as a supplementary cementitious material on the physical and chemical properties of M-30 grade concrete. Silica fume was added in varying proportions 5%, 10%, and 15% to thoroughly examine its influence on several key performance indicators, including compressive strength, workability, and resistance to chemical aggression. The results reveal noteworthy enhancements in strength, durability, and resilience against chemical attacks, indicating that optimal incorporation of silica fume can significantly elevate the overall performance of concrete. These findings highlight the potential of silica fume as a valuable additive in the quest for higher-quality, longer-lasting concrete solutions.*

Keywords: Silica Fume, M-30 Grade Concrete, Compressive Strength, Chemical Durability, Workability

