

Laboratory Investigation on the Waste Road Construction Material Using Conventional and Chemical Additives

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Abstract : To address the environmental impact of the cement industry and road building waste, the use of chemical stabilizers in conjunction with recycled asphalt and cement components was investigated. The silica-based chemical stabilizers and their potential effects on the base layer stabilized by cement are discussed in this paper. Strength, moisture compaction interaction, and microstructural characteristics are all examined. According to the outcome, using this stabilizer has improved the mechanical properties. The inclusion of chemical stabilizers in the combination, which is responsible for the mixture's improved strength, raised the intensity of the C-S-H (Calcium Silicate Hydrate) gel, according to a microstructural study. The design was demonstrated to be durable by the little ettringites found in the later phases. The application of this stabilizer ensures a strong, eco-friendly, durable base layer.

Keywords : ettringites, microstructure analysis, durability properties, cement stabilized base

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