

Stabilization of Expansive Soil: A Review

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Expansive soil, characterized by its high swell-shrink potential due to the presence of Montmorillonite mineral, poses significant challenges to infrastructure stability. Fluctuations in water content led to reductions in shear strength and volume change, resulting in various types of failures in infrastructure. This review paper provides an overview of different stabilization methods aimed at mitigating the detrimental impacts of expansive soil. Recent advances in stabilization techniques, including chemical and mechanical methods, as well as the innovative utilization of industrial wastes, are discussed in detail. Furthermore, the review emphasizes the sustainability aspects of various stabilization methods and offers insights into future research directions. The practical implications of these techniques for infrastructure development in expansive soil regions are also highlighted, underscoring the importance of effective soil stabilization in ensuring long-term infrastructure stability and sustainability.