

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan campuran polimer terhadap nilai kuat tekan bebas (Unconfined Compressive Strength/UCS) tanah clayshale pada STA 53+900 ruas Jalan Tol Serang–Panimbang. Tanah clayshale dikenal memiliki sifat mekanik yang kurang baik seperti daya dukung rendah dan mudah mengalami deformasi, sehingga diperlukan metode stabilisasi untuk meningkatkan kualitasnya. Penelitian ini menggunakan variasi campuran polimer sebesar 10%, 20%, dan 30% terhadap berat kering tanah, kemudian dilakukan pengujian Proctor dan UCS di laboratorium. Hasil pengujian menunjukkan bahwa penambahan polimer secara signifikan meningkatkan nilai kuat tekan bebas tanah clayshale, dengan nilai tertinggi pada campuran 20%. Penggunaan polimer terbukti efektif dalam meningkatkan stabilitas tanah, sehingga dapat diaplikasikan dalam proyek infrastruktur terutama di wilayah dengan karakteristik tanah serupa.

Kata Kunci: Clayshale, stabilisasi tanah, polimer, kuat tekan bebas, jalan tol.

ABSTRACT

This study aims to evaluate the effect of polymer admixture on the unconfined compressive strength (UCS) of clayshale soil at STA 53+900 on the Serang–Panimbang Toll Road section. Clayshale soil is known for its poor mechanical properties, including low bearing capacity and high deformability, thus requiring stabilization methods to enhance its performance. The research utilized polymer mixtures at 10%, 20%, and 30% of the soil's dry weight, followed by laboratory Proctor and UCS testing. The results showed a significant improvement in the soil's compressive strength with the addition of polymer, with the optimum strength observed at the 20% mixture. The use of polymer has proven effective in enhancing soil stability and is recommended for infrastructure development in areas with similar soil characteristics.

Keywords: Clayshale, soil stabilization, polymer, unconfined compressive strength, toll road.

