

PENGARUH PERSENTASE GEOPOLIMER BERBASIS POFA TERHADAP NILAI CBR TANAH GAMBUT

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh penambahan geopolimer berbasis Palm Oil Fuel Ash (POFA) terhadap peningkatan nilai California Bearing Ratio (CBR) tanah gambut. Variasi campuran geopolimer yang digunakan adalah 0%, 10%, 15%, 20%, dan 25% dengan waktu pemeraman 7 dan 14 hari. Hasil penelitian menunjukkan bahwa penambahan geopolimer POFA mampu menurunkan kadar air dan meningkatkan nilai CBR tanah gambut. Nilai CBR optimum diperoleh pada campuran 20% POFA dengan pemeraman 14 hari sebesar 2,6%. Penurunan nilai CBR pada campuran 25% disebabkan oleh kelebihan aktivator yang mengganggu proses pembentukan gel geopolimer. Dengan demikian, penggunaan geopolimer POFA efektif untuk meningkatkan daya dukung dan stabilitas tanah gambut pada kondisi optimum 20% dan pemeraman 14 hari.

Kata Kunci: Tanah Gambut, Geopolimer, POFA, Nilai CBR, Pemeraman

THE EFFECT OF POFA – BASED GEOPOLYMER PERCENTAGE ON CBR VALUE OF PEAT SOIL

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ABSTRACT

This study aims to analyze the effect of adding Palm Oil Fuel Ash (POFA)-based geopolymer on the improvement of the California Bearing Ratio (CBR) value of peat soil. The geopolymer mixtures used were 0%, 10%, 15%, 20%, and 25%, with curing periods of 7 and 14 days. The results show that the addition of POFA geopolymer can reduce the moisture content and increase the CBR value of peat soil. The optimum CBR value was achieved at 20% POFA with a 14-day curing period, reaching 2.6%. The decrease in CBR at 25% mixture was due to excessive activator, which disrupted the formation of the geopolymer gel. Therefore, the use of POFA-based geopolymer is effective in improving the bearing capacity and stability of peat soil at the optimum condition of 20% and 14 days curing.

Key words: Peat Soil, Geopolymer, POFA, CBR Value, Curing