

ABSTRAK

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PERBEDAAN VARIASI KOMPOSISI BAHAN PAVING BLOCK DARI LIMBAH PLASTIK BERJENIS HDPE TERHADAP DAYA SERAP AIR

Xiv Halaman Permulaan + 49 halaman isi + 7 tabel + 15 gambar + 12 Lampiran

Limbah plastik jenis High Density Polyethylene (HDPE) merupakan sampah anorganik yang sulit terurai dan berkontribusi terhadap pencemaran lingkungan. Salah satu alternatif pengelolannya adalah dengan memanfaatkannya sebagai bahan campuran paving block. Penelitian ini bertujuan untuk mengetahui perbedaan variasi komposisi bahan paving block dari limbah plastik berjenis HDPE terhadap daya serap air.

Metode yang digunakan adalah pra eksperimen membuat paving block dengan tiga variasi komposisi: Paving A 35% HDPE, 20% oli, 45% pasir, Paving B 40% HDPE, 20% oli, 40% pasir, dan Paving C 45% HDPE, 20% oli, 35% pasir. Setiap variasi diuji daya serap airnya menggunakan uji deksriptif dan uji statistik (anova).

Hasil penelitian menunjukkan bahwa rata rata daya serap air Paving A 2,48%, Paving B sebesar 1,79%, dan Paving C sebesar 1,75% sampel memenuhi syarat mutu A dengan batas maksimum daya serap air $\leq 3\%$. Hasil uji Anova diperoleh nilai sig (0,171) lebih besar dari nilai α (0,05) sehingga tidak ada perbedaan. Peningkatan persentase HDPE cenderung menurunkan daya serap air paving block, menunjukkan kerapatan dan daya ikat material yang lebih baik, dan menambahkan uji daya tekan paving block. Perlu penelitian lebih lanjut tentang daya tekan paving block.

Kata Kunci: HDPE, limbah plastik, paving block, daya serap air, komposisi

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PERBEDAAN VARIASI KOMPOSISI BAHAN PAVING BLOCK DARI LIMBAH PLASTIK BERJENIS HDPE TERHADAP DAYA SERAP AIR
xiv preliminary pages + 49 content pages + 7 tables + 15 figures + 12 appendices.

High Density Polyethylene (HDPE) plastic waste is an inorganic material that is difficult to decompose and contributes to environmental pollution. One alternative for managing this waste is by utilizing it as a mixed material in paving blocks. This study aims to determine the differences in water absorption based on variations in the composition of paving blocks made from HDPE plastic waste.

The method used was an experiment with three composition variations: Paving A (35% HDPE, 20% oil, 45% sand), Paving B (40% HDPE, 20% oil, 40% sand), and Paving C (45% HDPE, 20% oil, 35% sand). Each variation was tested for water absorption using descriptive tests and statistical analysis (ANOVA).

The test results showed that all samples met quality standard A with a maximum water absorption limit of $\leq 3\%$. The average water absorption results were 2.48% for Paving A, 1.79% for Paving B, and 1.75% for Paving C. The statistical test showed a significance value (sig) of 0.171 > p-value 0.05, so H1 was rejected. Increasing the percentage of HDPE tends to decrease the water absorption of paving blocks, indicating better material density and bonding strength. This study proves that HDPE plastic waste can be effectively used as a material for paving blocks with water absorption quality that meets national standards. Suggestions for future research include better temperature control to prevent the mixture from hardening prematurely, exploring different composition variations for improved results, and adding tests to measure the compressive strength of the paving blocks.

Keywords: HDPE, plastic waste, paving block, water absorption, composition