

ABSTRAK

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PEMANFAATAN LIMBAH CANGKANG TELUR SEBAGAI SUBSTITUSI
SEMEN DALAM PEMBUATAN PAVING BLOK

xiv + 49 Halaman + 12 Tabel + 5 Lampiran

Tingginya minat dan kebutuhan masyarakat terhadap telur tentunya akan menghasilkan limbah cangkang telur dalam jumlah yang besar. Menurut data Badan Pusat Statistik, produksi telur di Indonesia pada tahun 2024 sebesar 6.342.705.000,04 ton. Dampak dari produksi tersebut adalah limbah cangkang telur. Tujuan penelitian ini adalah pemanfaatan limbah cangkang telur sebagai bahan tambahan substitusi semen pembuatan paving blok.

Jenis penelitian ini adalah penelitian eksperimen murni dengan menggunakan rancangan post test with control design. Variabel penelitian meliputi perbedaan diameter saringan serbuk cangkang telur yaitu 20 mesh, 60 mesh dan 100 mesh, untuk di uji kuat tekan dan daya serap air paving block yang disesuaikan dengan SNI 03-0691-1996, paving blok disimpan selama 28 hari. Data yang diperoleh dari hasil pengujian akan diolah secara statistik *one way anova* untuk mengukur perbedaan variasi ukuran diameter saringan

Hasil penelitian menunjukkan bahwa variasi 60 mesh memberikan nilai kuat tekan tertinggi yaitu rata-rata 15,20 MPa, dan daya serap air terendah sebesar 12,10%, dengan satu sampel mencapai 9,73% yang memenuhi mutu D. Variasi 20 mesh dan 100 mesh menunjukkan porositas tinggi dan daya serap air melebihi batas mutu.

Kesimpulan, ukuran partikel 60 mesh paling direkomendasikan. Saran bagi masyarakat adalah memanfaatkan limbah cangkang telur sebagai bahan tambahan paving block, dan bagi peneliti lain disarankan meneliti penambahan bahan aditif untuk menurunkan daya serap air secara optimal.

Kata Kunci : Paving Block, Pemanfaatan Cangkang Telur

Daftar Bacaan: 20 Jurnal, 1 SNI Beton

ABSTRACT

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UTILIZATION OF EGG SHELL WASTE AS A CEMENT SUBSTITUTION IN MAKING PAVING BLOCKS

xiv + 49 Pages + 12 Tables + 5 Appendices

The high interest and needs of the community for eggs produce large amounts of eggshell waste. According to data from the Central Statistics Agency, egg production in Indonesia in 2024 was 6,342,705,000.04 tons. The impact of this production is eggshell waste. The purpose of this study is to utilize eggshell waste as an additional material to substitute cement in the making of paving blocks..

This research had been a pure experimental study using a post-test with control design. The research variables included differences in the diameter of the eggshell powder sieve, namely 20 mesh, 60 mesh, and 100 mesh, to test the compressive strength and water absorption of paving blocks in accordance with SNI 03-0691-1996, which were stored for 28 days. The data obtained from the test results were processed statistically using one-way ANOVA to determine the differences in sieve diameter variation.

The results showed that the 60 mesh variation provided the best performance, with the highest compressive strength (average 15.20 MPa) and the lowest water absorption (one sample met quality standard D). The 20 mesh and 100 mesh variations showed higher water absorption and relatively lower compressive strength. It was concluded that the particle size of the eggshell powder affected the physical properties of the paving block, where 60 mesh was the most ideal size for reducing porosity and increasing strength.

Conclusion, the 60 mesh particle size was the most recommended. It was suggested that the community utilize eggshell waste as an additional material in paving block production. For future researchers, it is recommended to explore the use of additives to further reduce water absorption optimally.

Keywords : Paving Block, Utilization of Egg Shells

Reading List : 20 Journal, 1 SNI Concrete