PENGARUH PENGGUNAAN PASIR ZEOLITE SEBAGAI BAHAN Pengganti Agregat Halus Terhadap Kuat Tekan Paving Block

Rifanda Friescha Pramudya[1] Dwi Kurniati, S.T., M.T. [2]

Program Studi Teknik Sipil Fakultas Sains dan Teknologi Universitas Teknologi Yogyakarta;
e-mail:[1]rifanda456@gmail.com, [2]dwi.kurniati@staff.uty.ac.id

ABSTRAK

Indonesia merupakan salah satu negara yang memiliki banyak gunung api yang masih aktif, sehingga hal tersebut mendatangkan keuntungan terhadap permukaan tanah di Indonesia, material vulkanis selain itu potensi hasil tambang yang melimpah akibat pembekuan magma yang terjadi dibawah tanah membentuk bebagai logam dan mineral, Salah barang tambang yang memiliki jumlah melimpah adalah batuan zeolite. Maka dari itu penelitian ini penulis memanfaatkan material zeolite yang telah berbentuk agregat halus sebagai bahan pengganti agregat halus pada pembuatan *paving block* . Tugas akhir ini bertujuan untuk mengetahui kuat tekan dan daya serap air *paving block* normal dan *paving block* yang agregat halusnya telah diganti dengan pasir zeolite. Metode pada penelitian ini adalah studi eksperimental, dengan pelaksanaan pengujian berdasarkan dengan SNI 03-0691-1996 tentang Bata Beton. Pengujian yang dilakukan yakni pengujian kuat tekan *paving block* dan pengujian serap air Tugas akhir ini bertujuan untuk melakukan perbandingan antara *paving block* normal dengan *paving block* dengan bahan pengganti agregat halus pasir zeolite. Dengan jumlah sample uji sebanyak 40 pcs, yang terdiri dari 20 pcs sample uji *paving block* normal dan 20 pcs *paving block* pasir zeolite. Hasil analisis yang telah dilakukan pada 10 benda uji kuat tekan didapatkan nilai rata-rata kuat tekan sebesar 13,47 (Mpa) dan nilai penyerapan air sebesar 5,48% Sesuai dengan SNI 03-0691-1996 *paving block* normal masuk dalam mutu kelas C. Sedangkan untuk *paving block* dengan bahan pengganti agregat halus pasir zeolite didapatkan nilai rata-rata kuat tekan sebesar 7,24 (Mpa) dan nilai penyerapan air sebesar 8,83% masuk kedalam mutu kelas D, sehingga dapat ditarik kesimpulan bahwa pasir zeolite tidak direkomendasikan sebagai bahan pengganti agregat halus dalam pembuatan *paving block* dikarenakan nilai kuat tekan belum masuk kedalam klasifikasi SNI 03-0691-1996.

Kata kunci: Kuat tekan, Paving Block, Serap Air, Agregat Halus, Zeolite

EFFECT OF USING ZEOLITE SAND AS MATERIAL
Substitute for Fine Aggregate Against Compressive Strength of Paving Block

Rifanda Friescha Pramudya[1] Dwi Kurniati, S.T., M.T. [2]

Civil Engineering Study Program Faculty of Science and Technology University of Technology Yogyakarta;
e-mail:[1]rifanda456@gmail.com, [2]dwi.kurniati@staff.uty.ac.id

ABSTRACT

Indonesia is one of the countries that has many active volcanoes, so that it brings benefits to the land surface in Indonesia, volcanic material in addition to the potential for abundant mining products due to magma freezing that occurs underground forming various metals and minerals. which has an abundant amount is zeolite rock. Therefore, in this study, the authors utilize zeolite material that has been in the form of fine aggregate as a substitute for fine aggregate in the manufacture of paving blocks. This final project aims to determine the compressive strength and water absorption of normal paving blocks and paving blocks whose fine aggregate has been replaced with zeolite sand. The method in this research is an experimental study, with the implementation of testing based on SNI 03-0691-1996 regarding Concrete Brick. The tests carried out are testing the compressive strength of paving blocks and testing water absorption. This final project aims to compare normal paving blocks with paving blocks with a substitute for fine aggregate of zeolite sand. With the number of test samples as many as 40 pcs, consisting of 20 pcs of normal paving block test samples and 20 pcs of zeolite sand paving blocks. The results of the analysis that has been carried out on 10 compressive strength test objects obtained an average compressive strength value of 13.47 (Mpa) and a water absorption value of 5.48%. In accordance with SNI 03-0691-1996 normal paving blocks are classified as class C quality. Meanwhile, for paving blocks with zeolite sand as a substitute for fine aggregate, the average compressive strength value is 7.24 (Mpa) and the water absorption value is 8.83%, which is classified as class D, so it can be concluded that zeolite sand is not recommended. as a substitute for fine aggregate in the manufacture of paving blocks because the compressive strength value has not yet entered the classification of SNI 03-0691-1996.

Keywords: Compressive Strength, Paving Block, Water Absorption, Fine Aggregate, Zeolite