

# **INOVASI EKSPERIMENTAL PAVING BLOCK DENGAN LIMBAH PLASTIK JENIS POLYVINYL CHLORIDE (PVC) TERHADAP KUAT TEKAN PAVING BLOCK**

Wisnu Arbi Suprpto<sup>[1]</sup> Dwi Kurniati, S.T., M.T. <sup>[2]</sup>

Program Studi Teknik Sipil Fakultas Sains dan Teknologi Universitas Teknologi Yogyakarta;  
e-mail:[1] wisnu421997@gmail.com, [2]dwi.kurniati@staff.ac.id

## **ABSTRAK**

Limbah plastik merupakan material terbuat dari produk turunan minyak bumi yang diperoleh melalui proses penyulingan dengan karakteristik plastik yang memiliki ikatan kimia yang sangat kuat sehingga banyak material yang dipakai oleh masyarakat berasal dari plastik namun plastik merupakan material yang tidak bisa terdekomposisi secara alami (non-biodegradable) sehingga setelah digunakan, material yang berbahan baku plastik akan menjadi sampah yang sulit diuraikan oleh mikroba tanah dan akan mencemari lingkungan. Plastik jenis polyvinyl chloride (PVC) merupakan jenis plastik yang memiliki karakter fisik yang stabil dan tahan terhadap bahan kimia dan plastik yang dianggap paling berbahaya bagi kehidupan sehari – hari karena plastik jenis Polyvinyl Chloride (PVC) bisa menyebabkan keracunan beberapa zat berbahaya seperti bisphenol A (BPA), phthalates, dioxins, mercury, dan cadmium maka pemanfaatan limbah plastik jenis Polyvinyl Chloride (PVC) dalam pembuatan paving block sangat baik dikarenakan sifat solid serta mengurangi dampak dari limbah PVC yang sangat berbahaya.

Analisis perencanaan kebutuhan bahan menggunakan metode eksperimen dimana komposisi kebutuhan bahan hasil uji coba dengan mengacu pada penelitian sebelumnya. Pembuatan benda uji menggunakan metode manual dengan campuran bahan yang telah ditentukan dari hasil analisis dan cetakan yang telah dimodifikasi sehingga hasil benda uji sesuai acuan SNI 03-0691 tahun 1996.

Penelitian Inovasi Eksperimental Paving Block dengan Limbah Plastik Jenis Polyvinyl Chloride (PVC) Terhadap Kuat Tekan mendapatkan hasil kuat tekan optimum paving block normal sebesar 8.90 dan paving block plastik jenis PVC (Polyvinyl Chloride) sebesar 7.40 MPa sehingga paving block dengan bahan dasar plastik jenis polyvinyl chloride (PVC) tidak disarankan dalam pembuatan paving block karena kuat tekan lebih rendah dari pada paving block normal.

Kata kunci: Dimensi, Kuat Tekan, Limbah, *Paving Block*, Plastik PVC

# **EXPERIMENTAL INNOVATION OF PAVING BLOCK WITH POLYVINYL CHLORIDE (PVC) TYPE OF PLASTIC WASTE AGAINST THE COMPRESSIVE STRENGTH OF PAVING BLOCK**

Wisnu Arbi Suprpto<sup>[1]</sup> Dwi Kurniati, S.T., M.T. <sup>[2]</sup>

Civil Engineering Study Program Faculty of Science and Technology University of Technology Yogyakarta;  
*e-mail:[1] wisnu421997@gmail.com, [2]dwi.kurniati@staff.ac.id*

## **ABSTRACT**

Plastic waste is a material made from petroleum derivative products obtained through a refining process with the characteristics of plastics that have very strong chemical bonds so that many materials used by the public come from plastic, but plastic is a material that cannot be decomposed naturally (non-biodegradable). so that after use, materials made from plastic will become waste that is difficult to decompose by soil microbes and will pollute the environment. Polyvinyl chloride (PVC) plastic is a type of plastic that has stable physical characteristics and is resistant to chemicals and plastics which are considered the most dangerous for everyday life because Polyvinyl Chloride (PVC) plastic can cause poisoning by several harmful substances such as bisphenol A ( BPA), phthalates, dioxins, mercury, and cadmium, the utilization of Polyvinyl Chloride (PVC) plastic waste in the manufacture of paving blocks is very good due to its solid nature and reducing the impact of PVC waste which is very dangerous.

Analysis of material requirements planning uses an experimental method where the composition of material requirements is the result of a trial with reference to previous research. Manufacture of test objects using the manual method with a mixture of materials that have been determined from the results of the analysis and the mold that has been modified so that the results of the test objects are in accordance with the reference of SNI 03-0691 1996.

Experimental Innovation Research Paving Block with Polyvinyl Chloride (PVC) Plastic Waste Against Compressive Strength obtained optimum compressive strength results for normal paving blocks of 8.90 and PVC (Polyvinyl Chloride) plastic paving blocks of 7.40 MPa so that the paving blocks are made with polyvinyl chloride plastic as the base material. (PVC) is not recommended in the manufacture of paving blocks because the compressive strength is lower than normal paving blocks.

**Keywords:** Dimension, Compressive Strength, Waste, Paving Block, PVC Plastic