

## ABSTRAK

### PENGARUH VARIASI KONSENTRASI MINERAL SLAG TERHADAP SIFAT FISIS DAN KARAKTEIRISTIK PADA PRODUK *PAVING BLOCK*

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Pembuatan *paving block* dilakukan dengan proses pencetakan, perawatan, pengujian fisik meliputi kuat tekan, berat jenis, absorpsi, porositas, dan susut bakar, serta karakterisasi meliputi XRF dan XRD. *Paving block* ini dibuat dengan tanpa penambahan mineral slag dan dengan penambahan mineral slag 5%, 15%, 25%, dan 35% dengan tingkat kehalusan mesh 60 dan 80. Bahan baku yang digunakan yaitu semen, pasir, batuan andesit dan air. Proses ini menunjukkan hasil bahwa semakin besar variasi konsentrasi mineral slag maka kuat tekan, berat jenis, dan susut bakar yang dihasilkan semakin kecil, serta absorpsi dan porositas semakin besar. *Paving block* tanpa penambahan mineral slag memiliki kuat tekan sebesar 8,612 MPa dan absorpsi sebesar 8,89%, sedangkan dengan penambahan mineral slag 5% pada mesh 60 dan mesh 80 memiliki kuat tekan secara berurutan sebesar 9,115 MPa dan 9,652 MPa, serta nilai absorpsi sebesar 6,61% dan 5,88%. Sehingga *paving block* pada penelitian ini termasuk ke dalam *paving block* tipe D yang biasa digunakan untuk taman. Karakterisasi XRF menunjukkan bahwa semakin banyak konsentrasi slag maka CaO yang terkandung dalam *paving block* semakin berkurang sedangkan SiO<sub>2</sub> semakin bertambah. Hasil karakterisasi XRD menunjukkan bahwa fasa yang terbentuk yaitu fasa *Gismondine*, *Calcite*, *C-S-H* dan *Quartz*.

**Kata kunci.** *Paving block*, mineral slag, kuat tekan, berat jenis, absorpsi, porositas, susut bakar, XRF, dan XRD.

## ABSTRACT

### EFFECT OF VARIATION SLAG MINERALS CONCENTRATION ON PHYSICAL PROPERTIES AND CHARACTERISTICS OF PAVING BLOCK PRODUCT

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Paving Block making process is done with the process of making test objects, printing, maintenance, physical testing includes strong press, density, absorption, porosity, and grinded shrink, as well as characterization including XRF and XRD. *Paving Block* is made with no addition of slag minerals and with the addition of the mineral slag 5%, 15%, 25%, and 35% with the smoothness level of mesh 60 and 80. The raw materials used are cement, sand, andesite rocks and water. This process shows that the greater variation in the concentration of slag minerals then strong press, type weight, and grinded shrink become smaller, and the absorption and porosity are getting bigger. *Paving Block* without additions of slag mineral has a strong press of 8.612 MPa and absorption of 8.89%, while with the addition of slag mineral 5% on mesh No. 60 and mesh No. 80 has strong press of 9.115 MPa and 9.652 MPa, as well as absorption value of 6.61% and 5.88%. So *Paving Block* in this study included in type D *Paving Block* that commonly used for parks. XRF characterization shows that the more concentration of slag then the CaO contained in the *paving block* is decrease while SiO<sub>2</sub> is increase. XRD characterization results shows that the phases formed are the *gishmondine*, *calcite*, *C-S-H* and *Quartz* phases.

**Keywords.** *Paving Block*, Slag Mineral, Strong press, density, Absorption, porosity, grinded shrink, XRF, and XRD.