

ABSTRAK

Industri beton di Indonesia sudah sangat berkembang, perkembangan ini berbanding lurus dengan meningkatnya kebutuhan masyarakat di bidang konstruksi. Beton merupakan bahan yang sering digunakan dalam bidang konstruksi. Kebutuhan yang semakin meningkat akan beton dapat berdampak pada menipisnya sumber daya di alam. Abu batu pecah dapat menjadi pilihan alternatif bahan campuran beton, karena keberadaannya yang melimpah dan pemanfaatannya yang masih sedikit. Tujuan penelitian ini adalah untuk mengetahui pengaruh penambahan abu batu pecah sebagai pasir dan semen terhadap kuat tekan beton. Benda uji berupa beton normal tanpa bahan tambah, beton dengan variasi bahan tambah abu batu pecah 20%, 40%, dan 60% dari berat agregat halus, dan beton dengan variasi bahan tambah abu batu pecah 5%, 10%, dan 20% dari berat semen. Kuat tekan beton normal sebesar 21,179 MPa memenuhi standar yaitu 20 MPa. Kuat tekan beton dengan variasi bahan tambah abu batu pecah 20%, 40%, dan 60% terhadap berat agregat halus berturut-turut adalah 19,089 MPa, 12,755 MPa, dan 10,775 MPa. Kuat tekan beton dengan variasi bahan tambah abu batu pecah 5%, 10%, dan 20% terhadap berat semen berturut-turut adalah 21,570 MPa, 22,297 MPa, dan 21,724 MPa. Hasil pengujian kuat tekan optimum, adalah beton dengan bahan tambah 10% abu batu pecah terhadap semen, yaitu sebesar 22,297 MPa atau meningkat 5,28% dari kuat tekan beton normal 21,179 MPa.

Kata Kunci: Kuat Tekan, Abu Batu Pecah, Pasir, Semen.

ABSTRACT

The concrete industry in Indonesia has developed significantly, and this development is in line with the increasing demand in the construction sector. Concrete is a material that is commonly used in construction. The growing demand for concrete can lead to the depletion of natural resources. Crushed stone dust can be an alternative concrete mix material because it is abundant and its use is still limited. The purpose of this study is to determine the effect of adding crushed stone dust as sand and cement on the compressive strength of concrete. The test specimens consisted of normal concrete without additives, concrete with variations of crushed stone dust as an additive at 20%, 40%, and 60% by weight of fine aggregate, and concrete with variations of crushed stone dust as an additive at 5%, 10%, and 20% by weight of cement. The compressive strength of normal concrete was 21.179 MPa, which meets the standard of 20 MPa. The compressive strength of concrete with variations of crushed stone dust as an additive at 20%, 40%, and 60% by weight of fine aggregate were 19.089 MPa, 12.755 MPa, and 10.775 MPa, respectively. The compressive strength of concrete with variations of crushed stone dust as an additive at 5%, 10%, and 20% by weight of cement were 21.570 MPa, 22.297 MPa, and 21.724 MPa, respectively. The optimal compressive strength test result was for concrete with 10% crushed stone dust as an additive by weight of cement, which was 22.297 MPa, an increase of 5.28% from the normal concrete compressive strength of 21.179 MPa.

Key word: Compressive Strength, Crushed Stone Ash, Sand, Cement.