

ABSTRAK

Cangkang sawit merupakan salah satu limbah yang dihasilkan dari proses pengolahan minyak kelapa sawit. Limbah cangkang kelapa sawit banyak dimanfaatkan dalam industri minyak, gula, dan karet untuk pembuatan arang aktif. Seiring dengan peningkatan produksi perkebunan kelapa sawit di Indonesia setiap tahunnya, volume limbah cangkang sawit juga terus bertambah signifikan. Penelitian ini bertujuan untuk menentukan persentase optimal penambahan cangkang sawit dalam pembuatan paving block guna mencapai kuat tekan paling optimal dari berbagai variasi penambahan cangkang sawit sebagai bahan tambahan agregat kasar. Penelitian ini dilakukan dengan metode eksperimental di laboratorium UPI “YPTK” PADANG.

Penelitian ini menggunakan benda uji balok dengan ukuran panjang 21 cm, lebar 10,5 cm dan tinggi 6 cm sebanyak 36 buah. Campuran menggunakan perbandingan 1 semen, 2 pasir dan 3 kerikil. Perawatan benda uji dilakukan dengan cara direndam di bak air untuk selanjutnya dilakukan pengujian kuat tekan pada umur 7 hari, 14 hari dan 21 hari. Berdasarkan pengujian nilai kuat tekan paving block nilai kuat tekan optimum berada pada umur rencana 21 hari dan minimum pada umur rencana 7 hari dan variasi campuran yang menghasilkan kuat tekan optimum adalah 2.5% diumur 7 hari, 14 hari dan 21 berturut-turut sebesar 29.025 Mpa, 29.176 Mpa dan 30.008 Mpa.

Kata kunci: limbah cangkang sawit, kuat tekan

ABSTRACT

Palm kernel shell is one of the waste products resulting from the palm oil processing. The waste of palm kernel shells is extensively utilized in the oil, sugar, and rubber industries for the production of activated carbon. As the palm plantation industry in Indonesia continues to grow each year, the volume of palm kernel shell waste also increases significantly. This study aims to determine the optimal percentage of palm kernel shell addition in the production of paving blocks to achieve the most optimal compressive strength from various variations of palm kernel shell additions as a coarse aggregate additive. This research was conducted through an experimental method at the UPI "YPTK" PADANG laboratory.

This study utilized a set of 36 test specimens in the form of beams with dimensions of 21 cm in length, 10 cm in width, and 6 cm in height. The mixture used a ratio of 1 part cement, 2 parts sand, and 3 parts gravel. The test specimens were treated by immersion in water tanks, and subsequently, compressive strength testing was conducted at ages of 7, 14, and 21 days. Based on the compressive strength testing of the paving blocks, the optimal compressive strength values were found to be at the planned age of 21 days, with the minimum at the early age of 7 days. The variation in the mixture that produced the optimal compressive strength was at 2.5% palm kernel shell addition, achieving compressive strength values of 29.025 MPa, 29.176 MPa, and 30.008 MPa at ages of 7 days, 14 days, and 21 days respectively.

Keywords: oil palm shell, compressive strength