PENGOLAHAN LUMPUR KOAGULAN DARI LIMBAH PEMOTONGAN HEWAN MENGGUNAKAN SOLIDIFIKASI/STABILISASI (S/S)

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INTISARI

Sabilisasi/solidifikasi lumpur koagulan Rumah Potong Hewan menjadi material *paving block* telah dilakukan. Penelitian ini difokuskan pada studi terkait karakteristik kimia dari limbah koagulan dan stabilisasi/solidifikasi menjadi material *paving block* pada variasi persen penambahan limbah koagulan, variasi ukuran limbah koagulan dan variasi penambahan SiO_2. Persiapan bahan dilakukan dengan pengeringan lumpur koagulan dibawah panas sinar matahari. Komposisi stabilisasi/solidifikasi dengan material semen dan pasir ditentukan pada perbandingan 1pc:6ps dengan faktor air semen <35%. Karakter kimia material limbah koagulan dilakukan dengan instrument SEM-EDX. Karakterisasi limbah koagulan dengan EDX menunjukkan kandungan Oksigen dan Karbon lebih dominan sebesar 49,78% dan 30,82%, kemudian unsur lain Al, Si, P, Fe, Ca, Na, Cu, dan Cr masing-masing sebesar 8,35%, 6,33%, 1,97%, 1,84%, 0,53%, 0,25%, 0,1%, dan 0,03%. Hasil uji SEM menunjukkan morfologi berpori yang relatif besar dan tidak beraturan. Stabilisasi/solidifikasi menunjukkan variasi persen penambahan limbah koagulan terbaik adalah 2% limbah koagulan dengan nilai kuat tekan 15,888 MPa, nilai keausan 3,55 mm/menit dan nilai penyerapan air sebesar 8,58%, kategori *paving block* mutu C. Variasi ukuran limbah koagulan terbaik adalah 200 mesh dengan nilai kuat tekan 28,384 MPa, nilai keausan 1,79 mm/menit, dan nilai penyerapan air sebesar 3,92%, kategori *paving block* mutu B. Variasi penambahan SiO_2 adalah 1% dengan nilai kuat tekan 31,623 MPa, nilai keausan 1,03 mm/menit, dan nilai penyerapan air sebesar 4,25%, kategori *paving block* mutu B. Hasil SEM-EDX material *paving block* terbaik dari setiap variasi didominasi adanya fase C-S-H dan C-A-H. *Paving block* terbaik adalah penambahan 2% limbah koagulan, ukuran limbah 200 mesh, bahan tambahan SiO2 1%.

Kata kunci: Stabilisasi/Solidifikasi, Limbah Koagulan RPH, SiO_2, *Paving Block.*

TREATMENT OF COAGULANT SLUDGE FROM THE SLAUGHTERHOUSE WASTE USING SOLIDIFICATION/STABILIZATION (S/S)

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ABSTRACT

Stabilization/solidification of coagulant sludge from the slaughterhouse turning to paving block materials has conducted. This research aims for chemical characteristics from coagulant waste and stabilized/solidified to be made paving block materials on percentage of coagulant waste addition, variations in particle size of coagulant waste and variations of SiO2 addition. The materials preparation are done through drying up the coagulant sludge. The composition for stabilizing/solidifying between cements and sand are determined on 1 pc : 6 ps and water cement ratio by <35%. The chemical characteristics are carried out through SEM-EDX instrumentals. The coagulant waste characteristics through EDX reveal Oxygen and Carbon are higher by 49,78% and 30,82%, and others Al, Si, P, Fe, Ca, Na, Cu, and Cr by 8,35%, 6,33%, 1,97%, 1,84%, 0,53%, 0,25%, 0,1%, and 0,03% relatively. Results of SEM show an adequate pores morphology and irregular. The best value of stabilization/solidification is revealed on the variations of coagulant waste addition by 2% coagulant waste on a compressive strengths of 15,888 Mpa, a wear value of 3,55 mm/mins and moisture sorption by 8,58%, categorizes of paving block quality C. The best variations in coagulant waste are 200 mesh on a compressive strength 28,384 MPa, wear value 1,79 mm/mins, and moisture sorption as much as 3,92%, and categorize of paving block quality B. The variations in SiO_2 addition by 1%, a compressive strength 31,623 MPa, a wear value 1,03 mm/minsa, and moisture sorption by 4,25%, categorizes of paving block quality B. The best results of SEM-EDX of paving block materials from every variation is dominant of C-S-H and C-A-H. The best paving block is that by 2% coagulant waste addition in particle size 200 *mesh* and 1% SiO_2 additive.

Keyword: *Stabilization/Solidification*, RPH *Coagulant Waste*, SiO_2, *Paving Block.*