

**PEMANFAATAN LIMBAH *SPENT CATALYST* DARI *RESIDUE CATALITIC CRACKING (RCC)* UNIT 15 PERTAMINA UP VI
BALONGAN SEBAGAI FILLER PADA PAVING BLOK**

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ABSTRAK

Spent catalyst Pertamina UP VI termasuk limbah B3, sehingga perlu pengolahan khusus. Penelitian ini bertujuan untuk mengetahui tingkat immobilisasi logam berat pada paving blok. juga dapat diketahui kuat tekan dan daya serap air paving blok. Metode pengolahan yang digunakan adalah solidifikasi limbah *spent catalyst*. Proses ini menggunakan variasi konsentrasi 0%, 16%, 23% dan 28%. Dan dicetak dengan ukuran 20x10x8cm, kemudian didiamkan selama 28 hari, benda uji dilakukan uji kuat desak, uji serap air, uji lindi dengan metode TCLP dan nilai produksi. Dari kegiatan penelitian ini, diperoleh nilai kuat tekan terendah sebesar 231,165 kg/cm², termasuk mutu kuat tekan B yakni untuk lapangan parkir dengan nilai minimum 170 kg/cm², daya serap air tertinggi 15,18% pada penambahan limbah 28% sedangkan perlindungan logam berat Cr 0,239 mg/l, Zn 0,586 mg/l, Pb 0,679 mg/l, Cu 0,149 mg/l dan Ni 1.21 mg/l. Hasil ini masih dibawah standar TCLP, yaitu untuk Cr 5 mg/l, Zn 50 mg/l, Pb 5 mg/l, Cu 10 mg/l dan Ni 11 mg/l., Diperoleh biaya produksi paving blok Rp.18.000/m² pada penambahan limbah 28%. Lebih murah jika dibandingkan harga di pasaran seharga Rp.28.000/m². Dari hasil ini menunjukkan bahwa limbah *spent catalyst* dari UP VI Balongan layak dari aspek teknis, kesehatan lingkungan dan lebih ekonomis.

Kata Kunci : *Spent catalyst*, immobilisasi, logam berat, kuat desak, serap air, lindi, biaya produksi.

THE USING OF SPENT CATALYST FROM RESIDUE CATALYTIC CRACKING (RCC) UNIT 15 PERTAMINA UP VI BALONGAN AS THE FILLER OF PAVING BLOCK

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ABSTRACT

Spent catalyst at Pertamina UP VI Balongan from RCC 15 belongs to the hazardous waste, therefore it needs special handle. The objective of this research is to find out the immobilization level of metals in the paving blocks which is added by spent catalyst and other additive substances which are helpful in the chain process. Beside that, it can be know the pressure strength and water absorbance capacity of the paving blocks. The method use is spent catalyst waste solidification. In this solidification process, uses various concentration, i.e. 0%, 16%, 23%, and 28%, then shaped it in 20x10x8 cm. The paving blocks are restored in 28 days. Then doing the pressure strength, water absorbance test, leachate test with the TCLP method and the production value. From the pressure strength, it is resulted the lowest pressure capacity i. e. 231.165 kg/cm², which is chategorized as the B pressure capacity, which is used for the parking lot with the minimum value 170 kg/cm²; the highest of water absorbance is 15.18% in the 28% waste addition; while the leachate test are 0.239 mg/l Cr, 0.586 mg/l Zn, 0.679 mg/l Pb, 0.149 mg/l Cu and 1.21 mg/l Ni. Those results are still under the TCLP standard, which are 5 mg/l Cr, 50 mg/l Zn, 5 mg/l Pb, 10 mg/l Cu, and 11 mg/l Ni. For the production value, the mean price for the paving blocks is Rp.18.000/m² in the 18% waste addition. It is cheaper than the market price, i.e. Rp.28.000/m². As result the spent catalyst waste from the UP IV Balongan is proper from the technique, environmental health, and economic aspect.

Key word : Spent catalyst, immobilization, heavy metal, pressure strength, water absorbance, leacheate test, production value.