

DESAIN MULTI SOIL LAYERING (MSL) BIOMINERAL UNTUK PENYARINGAN LIMBAH CAIR KILANG MINYAK GUNA AIR IRIGASI

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Author Order	of
Accreditation	
Abstract	<p>Berdasarkan hasil penelitian tahun 2010 didapatkan bahwa kombinasi zeolit, batuan fosfat, arang aktif dan Andisol dengan inokulasi <i>Pseudomonas</i> sp., dan <i>Bacillus</i> sp. 10 mL 109 UPK/kg bahan sebagai pengisi MSL efektif, menurunkan cemaran air limbah industri kilang minyak. Sebagai tindak lanjut pada tahun berikutnya dilakukan penelitian dengan tujuan merancang blok MSL biomineral sebagai penyaring air limbah kilang minyak di inlet. Blok MSL biomineral dibuat dengan ukuran 5 cm x 15 cm x 30 cm dengan mineral pengisi 80-95 %, dan bahan perekat liat (Vertisol), kapur (kalsit) dan semen 5-20 %. Percobaan disusun dalam rancangan acak lengkap dua faktor (jenis perekat dan dosis perekat). Perlakuan bahan penyemen terdiri atas: liat (Vertisol) (B1), kapur (B2), semen (B3), liat + kapur (B4), dan liat + kapur + semen (B5); Dan dosis bahan penyemen terdiri atas: 5 % (D1), 10 % (D2), dan 20% (D3). Variabel yang diamati adalah: pH, hidrokarbon, Cd, Pb, Hg, dan As. Konsentrasi cemaran air limbah hasil penyaringan MSL dibandingkan dengan baku mutu FEPA 1991, PP 85 tahun 1999, dan Permen LH No. 04 Th. 2007. Variabel pH dan kadar Hg air limbah kilang minyak pada lagun satu di bawah baku mutu, sedangkan variabel hidrokarbon/minyak, Cd, Pb, dan As masih di atas baku mutu. Materi perekat MSL liat, kapur, semen, dan campurannya berpengaruh berbeda terhadap efektifitas MSL dalam menyaring polutan air limbah kilang minyak. Liat, dan campuran liat dan kapur paling efektif menyaring polutan air limbah kilang minyak. Komposisi perekat MSL 10% paling baik dalam menurunkan kadar polutan air limbah kilang minyak. Kata kunci: biomineral, multi soil layering, limbah cair kilang minyak, irigasi</p> <p>ABSTRACT Based on the research in 2010 found that the combination of zeolite, rock phosphate, activated charcoal and Andisol with inoculation of <i>Pseudomonas</i> sp., and <i>Bacillus</i> sp. 10 mL 109 CFU/kg MSL filler material as effectively lowering contaminant oil refinery industry wastewater. As a follow-up study conducted in 2011 with the purpose of the MSL design blocks biomineral as refinery waste water filter on the inlet. Block MSL biomineral created with a size of 5 cm x 15 cm x 30 cm with 80-95 % mineral filler, and an adhesive/cementing clay (Vertisol), limestone (calcite) and 5-20 % cement. Experiment was arranged in a completely randomized design of two factors (type of adhesive and adhesive doses. Treatment consisted of cementing material: clay (Vertisol) (B1), lime (B2), cement (B3), clay + lime (B4), and clay + lime + cement (B5); And dose cementing material consists of: 5 % (D1), 10 % (D2), and 20 % (D3). The variables measured were: pH, hydrocarbons, Cd, Pb, Hg, and As. Concentration of wastewater contamination screening results compared to the standard quality MSL FEPA, 199, PP 85 of 1999, and Permen LH. No. 04 Th. , 2007. Variable pH and Hg levels in the refinery wastewater lagoon below the quality standard, while the variable hydrocarbon /oil, Cd, P, and As are still on uper of the standard. MSL adhesive material clay, lime, cement, and mixtures of different influence on the effectiveness of the MSL filter oil refinery wastewater pollutants. Clay, and a mixture of clay and lime most effective filter oil refinery wastewater pollutants. MSL adhesive composition of 10 % is best in lowering oil refinery wastewater pollutants. Key words: biomineral, multi soil layering, liquid waste of oil refinery, irrigation</p>
Publisher Name	Jenderal Soedirman University
Publish Date	2015-01-26
Publish Year	2014
Doi	DOI: 10.20884/1.agrin.2014.18.2.223
Citation	
Source	Agriin
Source Issue	Vol 18, No 2 (2014): Agriin
Source Page	
Url	https://jurnalagrin.net/index.php/agrin/article/view/223

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