Politeknik Kesehatan Kementrian Kesehatan Bandung

Program Studi Sarjana Terapan Sanitasi Lingkungan

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ABSTRAK

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PERBEDAAN KETEBALAN KOMPOSISI MEDIA ADSORBEN KARBON AKTIF ARANG TEMPURUNG KELAPA DAN ZEOLIT TERHADAP PENURUNAN FENOL PADA LIMBAH CAIR DI PT. XYZ

xi + 67 halaman + 10 tabel + 8 gambar + 6 lampiran

Pengolahan limbah cair sangat diperlukan oleh suatu industri. Kualitas air limbah cair harus memenuhi persyaratan sebagai upaya pencegahan tercemarnya lingkungan. Salah satu industri yang bergerak dibidang pangan memiliki limbah produksi dengan nilai melebihi ambang batas dengan kadar fenol sebesar 2,23 mg/l. Sedangkan kadar maksimum fenol pada air limbah menurut PERMENLH No 5 tahun 2014 adalah 0,5 mg/l. Tujuan penelitian ini untuk mengetahui perbedaan ketebalan komposisi media adsorben karbon aktif arang tempurung kelapa dan zeolit dalam menurunkan kadar fenol pada limbah cair. Jenis penelitian adalah eksperimen, desain penelitian *pre post test without control* dengan menggunakan ketebalan media 70 cm dengan komposisi ketebalan media adsorben yang berbeda yaitu 1:1 (35cm &35cm), 4:3 (40cm & 30cm), dan 9:5 (45cm & 25cm), banyak pengulangan 6 kali. Populasi pada penelitian ini adalah seluruh limbah cair produksi dan sampelnya adalah sebagian limbah cair produksi yang diambil untuk diberi perlakuan media adsorben. Tekhnik pengambilan sampel secara *grab sampling*, besar sampel sebanyak 24 buah sampel. Tehnik pengumpulan data melakukan pemeriksaan kadar fenol, suhu dan pH air limbah, analisa data dengan uji *One Way Anova*. Hasil penelitian pada perbandingan komposisi 1:1, 4:3 dan 9:5 rata-rata penurunan kadar fenol limbah 1,44 mg/l, 1,09 mg/l dan 0,72 mg/l, persentase penurunan sebesar 60,65%, 70,22%, dan 80,44%. Terdapat perbedaan yang signifikan antara komposisi ketebalan media adsorben terhadap penurunan kadar fenol limbah cair pada penelitian ini. Saran: perlu penelitian lebih lanjut dalam sistem *continue*, penambahan ketebalan media adsorben, dan pengaturan debit air limbah agar dapat menurunkan fenol dibawah NAB.

Daftar Pustaka: 28 (2001-2020)

Kata Kunci : *Kadar fenol,Limbah cair,Ketebalan Karbon aktif, Ketebalan Zeolit*

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ABSTRACT

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DIFFERENCES OF INGREDIENT THICKNESS OF COCONUT ACTIVE CARBON AND ZEOLITE MEDIA IN REDUCING PHENOLES IN LIQUID WASTE IN THE PT. XYZ

xi + 67 pages + 10 tables + 8 pictures + 6 attachments
Liquid Waste Treatment must have for industies. Liquid Waste Quality must is an effort to prevent environmental pollution. One of the food Industries which is has production waste with a value exceeding the threshold with a phenol content of 2.23 mg / l. the maximum phenol content in liquid waste According to minister of environment regulation No. 5/2014 is 0.5 mg / l., The purpose of this research was to determine the thickness variation of the activated carbon and zeolite adsorbent media in reducing phenol levels in wastewater. The research was experimental, research design: pre and post test without control using the thickness media 70 cm difference of activated coconut carbon and zeolite media, difference 1:1 (35cm &3 35 cm) , difference 4:3 (40cm & 40cm) and difference 9:5 (45cm & 25cm), many repetitions 6 times. The population in this research were all production waste and the sample was part of the production waste which was taken to be treated with adsorbent media. The sampling technique was grab sampling, the sample size was 24 samples. The data collection technique is to check the phenol content, temperature and pH of the wastewater, and analyze the data using the One Way Anova test. The results of the difference ingredient 1:1, 4:3 and 9:5, the average reduction in phenol levels of waste was 1.44 mg / l, 1.09 mg / l and 0.72 mg / l, the percentage reduction was 60.65%, 70,22%, and 80.44%. There is a significant difference in the reduction in phenol levels in wastewater in this research. Suggestion: further research is needed on increasing the surface area of the filter media, and it is necessary to increase the thickness of the activated carbon and zeolite media in order to reduce levels below TLV.

Reference: 28 (2001-2020)
Keywords:Phenolcontent, liquidwaste, thicknessActivatedcarbon, thicknessZeolite