Politeknik Kesehatan Kemenkes Bandung

Program studi Sarjana Terapan Sanitasi Lingkungan

Skripsi, Juli 2020

ABSTRAK

Caroline Ris Yolanda

VARIASI KETEBALAN MEDIA ADSORBEN KARBON AKTIF DAN ZEOLIT DALAM MENURUNKAN KADAR FENOL PADA LIMBAH CAIR DI INDUSTRI TEKSTIL KOTA CIMAHI

xii + 83 halaman + 9 tabel + 8 gambar + 10 lampiran

Pengolahan Limbah Cair merupakan upaya mencegah tercemarnya lingkungan. Salah satu Industri Kota Cimahi yang bergerak di bidang tekstil memiliki limbah produksi dengan nilai melebihi ambang batas dengan kadar fenol sebesar 3,15 mg/l. Menurut PERMENLH No 5 tahun 2014 kadar maksimum fenol pada limbah cair adalah 0,5 mg/l. Tujuan penelitian ini untuk mengetahui variasi ketebalan media adsorben karbon aktif dan zeolit dalam menurunkan kadar fenol pada limbah cair. Penelitian bersifat eksperimen, desain penelitian: *pre and post test without control* dengan menggunakan 3 variasi ketebalan media karbon aktif dan zeolit yaitu 18 cm , 26 cm dan 40 cm, banyak pengulangan 6 kali. Populasi pada penelitian ini adalah seluruh limbah produksi dan sampelnya adalah sebagian limbah produksi yang diambil untuk diberi perlakuan media adsorben. Teknik pengambilan sampel secara grab sampling, besar sampel sebanyak 36 buah sampel. Tehnik pengumpulan data melakukan pemeriksaan kadar fenol, suhu dan pH air limbah, analisa data dengan uji *One Way Anova*. Hasil pemeriksaan pada variasi 18 cm, 26 cm, dan 40 cm rata-rata penurunan kadar fenol limbah 1,31 mg/l, 0,93 mg/l dan 0,49 mg/l, persentase penurunan sebesar 62,56%, 73,01%, dan 84,95%. Terdapat perbedaan yang bermakna penurunan kadar fenol pada limbah cair pada penelitian ini. Saran: perlu penelitian lebih lanjut tentang penambahan luas permukaan alat media saring, dan perlu penambahan ketebalan media karbon aktif dan zeolit agar dapat menurunkan kadar dibawah NAB.

Daftar Pustaka: 33 (2001-2019)

Kata Kunci : Kadar fenol,Limbah cair,Variasi ketebalan,Karbon aktif,Zeolit

Health Polytechnic Ministry of Health Bandung

Environmental Sanitation Applied Undergraduate Study Program

Thesis, July 2020

ABSTRACT

Caroline Ris Yolanda

VARIATION OF THICKNESS OF ACTIVE CARBON AND ZEOLITE MEDIA IN REDUCING PHENOLES IN LIQUID WASTE IN THE CIMAHI CITY TEXTILE INDUSTRY

xii + 83 pages + 9 tables + 8 pictures + 10 attachments

Liquid Waste Treatment is an effort to prevent environmental pollution. One of the Cimahi City Industries which is engaged in textiles has production waste with a value exceeding the threshold with a phenol content of 3.15 mg / l. According to PERMENLH No. 5/2014, the maximum phenol content in liquid waste is 0.5 mg / l. The purpose of this study 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 3 variations of the thickness of activated carbon and zeolite media, namely 18 cm, 26 cm and 40 cm, many repetitions 6 times. The population in this study 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 36 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 examination at variations of 18 cm, 26 cm, and 40 cm, the average reduction in phenol levels of waste was 1.31 mg / l, 0.93 mg / l and 0.49 mg / l, the percentage reduction was 62.56%, 73 , 01%, and 84.95%. There is a significant difference in the reduction in phenol levels in wastewater in this study. 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: 33 (2001-2019)

Keywords: Phenol content, liquid waste, thickness variation, Activated carbon, Zeolite