

**PENGOLAHAN LIMBAH CAIR RUMAH SAKIT JIH DALAM METODE
ADSORPSI MENGGUNAKAN ADSORBEN KARBON AKTIF SISTEM
FLOW DALAM MENURUNKAN KADAR *CHEMICAL OXYGEN
DEMAND (COD)* DAN *TOTAL SUSPENDED SOLID (TSS)***

INTISARI

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Telah dilakukan suatu penelitian pengolahan limbah cair rumah sakit JIH dengan metode adsorpsi menggunakan adsorben karbon aktif dengan sistem *flow*. Proses penurunan konsentrasi COD dan TSS pada limbah cair rumah sakit dilakukan dengan variasi berat adsorben karbon aktif dari 100 g, 150 g, dan 200 g. Karbon aktif mampu digunakan sebanyak 3 kali penyaringan pada setiap variasi berat yang ditentukan, serta bahan lain seperti spon dan kertas saring membantu dalam proses penyaringan. Proses adsorpsi dengan sistem *flow* dilakukan selama 2 jam pada setiap variasi berat. Kemudian sampel limbah cair rumah sakit yang sudah diolah dianalisis untuk mengetahui konsentrasi COD menggunakan Spektrofotometer UV-Vis dan filtrat disaring menggunakan kertas saring whatman untuk uji TSS. Hasil analisis COD dan TSS sebelum diolah masing-masing adalah 259,81 mg/L dan 124 mg/L. Kadar COD menunjukkan kondisi optimum dari proses adsorpsi dengan sistem *flow* masing-masing pada variasi berat saringan pertama, kedua dan ketiga adalah 93,61 %; 95,36 %; dan 98,16 %. Pada kadar TSS setelah proses adsorpsi dengan variasi berat 100 g, 150 g, dan 200 g adalah 4 mg/L; 4 mg/L; dan 2 mg/L. Hasil penelitian menunjukkan kadar COD dan TSS sudah dibawah baku mutu yang ada di KEP-58/MENLH/12/1995 serta metode adsorpsi menggunakan adsorben karbon aktif sistem *flow* ini cukup efektif dalam pengolahan limbah cair rumah sakit.

Kata kunci: Limbah cair rumah sakit, COD, TSS, Karbon Aktif, Adsorpsi

**PROCESSING OF JIH HOSPITAL LIQUID WASTE BY ADSORPTION
METHOD USING ADSORBENT OF ACTIVATED CARBON WITH
FLOW SYSTEM TO DECREASE CHEMICAL OXYGEN DEMAND
(COD) AND TOTAL SUSPENDED SOLID (TSS) LEVELS**

ABSTRACT

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A research has been conducted on liquid waste treatment of JIH hospital with adsorption method using activated carbon adsorbent with flow system. The process of decrease in COD and TSS concentrations in hospital wastewater was carried out by weight variation of activated carbon adsorbent from 100 g, 150 g, and 200 g. Activated carbon can be used as much as 3 times the filtration at any given weight variation, as well as other materials such as sponges and filter papers helps in the filtration process. Adsorption process with flow system was done for 2 hours on each weight variation. Then, the sample of hospital treated liquid waste was analyzed to find out the COD concentration using UV-Vis Spectrophotometer and filtrate was filtered using whatman filter paper for TSS test. The analysis results of COD and TSS before being processed were 259,81 mg/L and 124 mg/L, respectively. The concentration of COD showed the optimum condition of the adsorption process with the flow system of each of the first, second and third filtration weight variations was 93,61%; 95,36%; 98,16%. At TSS level after adsorption process with weight variations 100 g, 150 g, and 200 g is 4 mg/L; 4 mg/L; and 2 mg/L. The results showed that the COD and TSS levels were below the existing quality standard in KEP-58/MENLH/12/1995 and the adsorption method using the activated carbon adsorbent flow system was quite effective in the processing of hospital liquid waste.

Keywords: Hospital liquid waste, COD, TSS, Activated Carbon, Adsorption.