

## **ABSTRAK**

### **PENGOLAHAN LIMBAH LABORATORIUM KIMIA DASAR TEKNIK KIMIA UNIVERSITAS SULTAN AGENG TIRTAYASA DALAM PENURUNAN KADAR ORGANIK SERTA LOGAM BERAT DENGAN METODE KOAGULASI DAN ADSORPSI**

Oleh:

**DYAN EKO WARDOYO      3335150046**  
**GHUFRAN ZUL QISTHI    3335150091**

Limbah Laboratorium merupakan limbah yang berasal dari buangan hasil reaksi-reaksi dalam suatu eksperimen. Laboratorium Kimia Dasar Fakultas Teknik Untirta merupakan laboratorium yang belum memiliki pengolahan limbah. Penelitian ini bertujuan mendapatkan variasi terbaik dalam pengolahan limbah dengan menggunakan kombinasi PAC sebagai koagulan dan zeolit alam sebagai adsorben untuk menurunkan parameter COD, Pb, Cr, Cu. Pengolahan limbah secara koagulasi dan adsorpsi pada limbah kimia dasar untuk variasi terbaik pada adsorben asam 0.5 M dapat menurunkan kandungan limbah kimia dasar COD = 49.62%, kadar logam berat Cr = 44.23%, Cu = 49,7 % dan limbah analitik COD = 60.68% dan kadar logam berat Cr = 95.23%, Cu = 84.02 %. Sedangkan kondisi adsorben basa 1.5 M dapat menurunkan kandungan limbah kimia dasar COD 49.59% dan kadar logam berat Cr = +58.52%, Cu = 33.72% dan limbah analitik COD 59.48% dan kadar logam berat Cr = 53.38%, Cu = 66.49%. Kadar organik mengalami penurunan namun tidak terlalu signifikan dan masih jauh di atas baku mutu limbah cair Permen LH No. 5 2014 .

Kata Kunci : Adsorpsi, Koagulasi, Limbah, Zeolit

ABSTRACT

**PROCESSING OF CHEMICAL LABORATORY WASTE BASED ON  
CHEMICAL ENGINEERING UNIVERSITY OF SULTAN AGENG  
TIRTAYASA IN REDUCTION OF ORGANIC LEVELS AND  
HEAVY METALS WITH COAGULATION  
AND ADSORPTION METHODS**

By:

**DYAN EKO WARDOYO      3335150046**

**GHUFRAN ZUL QISTHI      3335150091**

Laboratory waste is waste originating from the results of reactions in an experiment. The Basic Chemistry Laboratory of the Untirta Faculty of Engineering is a laboratory that does not yet have waste treatment. This study aims to obtain the best variation in waste treatment by using a combination of PAC as a coagulant and natural zeolite as an adsorbent to reduce the parameters of COD, Pb, Cr, Cu. Coagulation and adsorption waste treatment in basic chemical waste for the best variation in 0.5 M acid adsorbent can reduce the content of basic chemical waste COD = 49.62%, heavy metal content Cr = 44.23%, Cu = 49.7% and analytical waste COD = 60.68% and heavy metal content Cr = 95.23%, Cu = 84.02%. While the 1.5 M base adsorbent conditions can reduce the content of basic chemical waste COD 49.59% and heavy metal content Cr = + 58.52%, Cu = 33.72% and analytical waste COD 59.48% and heavy metal content Cr = 53.38%, Cu = 66.49% . Organic content has decreased but not too significant and is still far above the standard quality of liquid waste Permen LH No. 5 2014.

Keywords: Adsorption, Coagulation, Waste, Zeolites