

ABSTRAK

Ayulia Lady Agustin Tanjung

Variasi Lama Waktu Aerasi dengan Metode Tray Aerator Untuk Menurunkan Kadar COD Pada Limbah Cair di PT Papyrus Sakti Paper Mill Bandung

Viii + 43 halaman + 11 tabel + 8 gambar

PT.Papyrus Sakti Paper Mill merupakan salah satu industri yang bergerak dibidang pengolahan kertas dan yang diolah merupakan kertas bekas yang menghasilkan limbah cair, sehingga diperlukan adanya pengolahan agar limbah yang dibuang dapat memenuhi baku mutu yang ditentukan. Limbah cair industri kertas mengandung kadar COD (*Chemical Oxygen Demand*) yang tinggi yang berpotensi mencemari lingkungan. Metode pengurangan kadar COD limbah cair menggunakan aerator. Tujuan penelitian ini yaitu mengetahui perbedaan lama waktu aerasi dengan menggunakan tray aerator selama 1 (satu) jam, 2 (dua) jam, dan 3 (tiga) jam terhadap penurunan kadar COD limbah cair. Jenis penelitian yaitu eksperimen lapangan, dengan desain penelitian *pre-test pos-test without control*. Sampel penelitian ini sampel limbah cair dari PT Papyrus Sakti Paper Mill dengan besar sampel yaitu 6.309 liter. Jumlah sampel *pre-test* yaitu 9 liter dengan 6x pengulangan dan sampel *post-test* 9 liter dengan 6x pengulangan. Hasil menunjukkan dengan menggunakan tray aerator selama 3 jam didapatkan persentase penurunan kadar COD dengan rentang 47% - 70%. Hasil ini setelah diuji dengan menggunakan uji one-way Anova didapatkan hasil bahwa P value $0.011 < 0.05$ yang artinya adanya perbedaan yang signifikan antara lama waktu aerasi dengan penurunan kadar COD pada limbah Cair industri kertas. Untuk peneliti dapat menambahkan pengolahan tambahan maupun penambahan waktu aerasi agar persentase penurunan lebih tinggi.

KATA KUNCI : COD, *chemical oxygen demand*, industri kertas, lama waktu aerasi, tray aerator

ABSTRACT

Ayulia Lady Agustin Tanjung

Variation of Aeration Time by Tray Aerator Method to Reduce COD Levels in Waste Water at PT Papyrus Sakti Paper Mill Bandung

Viii + 43 pages+ 11 Table + 8 Attachments

PT Papyrus Sakti Paper Mill is one of the industries that engaged in paper and using the used paper to make the product so the industries have waste water as a side product, that needs to be processed so that the waste that is disposed of, can meet the specified quality standards. Paper industry waste water contains high levels of Chemical Oxygen Demand (COD) which has the potential to pollute the environment. Method for reducing COD levels of waste water are using an aerator. The purpose of this study is to find the difference in the duration of aeration by using a tray for 1 (one) hour, 2 (two) hours, and 3 (three) hours to reduce the COD content of waste water. This type of research is a field experiment, with a research design carried out with a pre-test post-test without control. The sample of this study used a sample waste water from PT Papyrus Sakti Paper Mill with a total sample was 6.309 liters. Total sample for *pre-test* was 9 liters with 6 repetitions and *post-test* sample 9 liters with 6 repetitions. The results of this research show that with the aeration method using tray aerator for 3 hours, the percentage reduction in COD levels in the range of 47% - 70%. The second result after being tested using the Anova one-way test method is showed that the P value $0.011 < 0.05$, which mean that there is a significant difference between the length of aeration time and the reduction in COD levels in the paper industry waste water. For researchers can add additional processing or increase aeration time so that the percentage of decline could be higher.

KEYWORDS : COD, chemical oxygen demand, duration of aeration contact, paper industries, tray aerator