

ABSTRAK

PERBANDINGAN EFEKTIVITAS POLY ALUMINIUM CHLORIDE DAN FERRIC CHLORIDE TERHADAP PENURUNAN KADAR TOTAL SUSPENDED SOLID LIMBAH LAUNDRY

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Latar Belakang : Limbah *laundry* yang mengandung kadar TSS tinggi dapat menyebabkan dampak negatif bagi lingkungan maupun kesehatan masyarakat. Koagulan PAC dan FeCl_3 dapat digunakan untuk menurunkan kadar TSS dengan metode koagulasi, flokulasi, serta sedimentasi. Tujuan dari penelitian ini yaitu mengetahui perbandingan efektivitas PAC dan FeCl_3 dalam menurunkan kadar TSS limbah *laundry*.

Metodologi : Penelitian *true experimental* ini menggunakan *pre and post test with control group design* dengan rancangan acak lengkap. Populasi dalam penelitian ini yaitu seluruh limbah *laundry* yang ada di Kelurahan Grendeng. Jenis perlakuan yang diberikan dengan metode koagulasi, flokulasi serta sedimentasi menggunakan koagulan PAC dan FeCl_3 dengan variasi dosis 0,1 gr/L, 0,15 gr/L, 0,2 gr/L, 0,25 gr/L pengulangan sebanyak 3 kali. Uji kadar TSS menggunakan metode gravimetri, dan uji statistik menggunakan *Kruskal Wallis* dilanjutkan *Mann Whitney*.

Hasil Penelitian : Perbedaan efektivitas penurunan kadar TSS pada masing-masing kelompok perlakuan yaitu : PAC 0,1 gr/L 41,32%, PAC 0,15 gr/L 35,84%, PAC 0,2 gr/L 70,13%, PAC 0,25 gr/L 29,03%, FeCl_3 0,1 gr/L 50,31%, FeCl_3 0,15 gr/L 35,33%, FeCl_3 0,2 gr/L 65,36%, FeCl_3 0,25 gr/L 81,46%.

Kesimpulan : Koagulan FeCl_3 0,25 gr/L paling efektif dalam menurunkan kadar TSS limbah *laundry* dengan efektivitas 81,46%.

Kata Kunci : TSS, PAC, FeCl_3 .

ABSTRACT

THE COMPARISON OF EFFECTIVENESS BETWEEN POLY ALUMINUM CHLORIDE AND FERRIC CHLORIDE TOWARDS DECREASE TOTAL SUSPENDED SOLID LAUNDRY WASTE

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Background : Laundry waste that containing high TSS levels can cause negative impacts for the environment and public health. PAC and FeCl_3 can be used to reduce TSS levels by coagulation, flocculation and sedimentation methods. The aims of this study is to know the comparison of effectiveness between PAC and FeCl_3 in reduce TSS levels of laundry waste.

Methods : This true experimental study uses pre and post test with control group design with a completely randomized design. The population in this study were all laundry wastes in Grendeng Village. The type of treatment given by the method of coagulation, flocculation and sedimentation using coagulant PAC and FeCl_3 with variations in dosage 0.1 gr / L, 0.15 gr / L, 0.2 gr / L, 0.25 gr / L repetition 3 times . TSS level tests using the gravimetric method, and statistical tests using Kruskal Wallis followed by Mann Whitney.

Result : The difference coagulant's effectiveness to decreasing TSS levels in each treatment groups are : PAC 0,1 gr/L 41,32%, PAC 0,15 gr/L 35,84%, PAC 0,2 gr/L 70,13%, PAC 0,25 gr/L 29,03%, FeCl_3 0,1 gr/L 50,31%, FeCl_3 0,15 gr/L 35,33%, FeCl_3 0,2 gr/L 65,36%, FeCl_3 0,25 gr/L 81,46%.

Conclusion : Coagulant FeCl_3 0.25 gr / L was the most effective in reducing TSS levels of laundry waste with the effectiveness of 81.46%.

Keyword : TSS, PAC, FeCl_3 .