

ABSTRAK

Limbah *laundry* memiliki kadar surfaktan yang melebihi baku mutu. Oleh karenanya, perlu dilakukan degradasi sebelum dibuang ke perairan sekitar, agar tak menimbulkan dampak negatif bagi lingkungan. Penelitian ini dilakukan dengan metode elektrolisis menggunakan satu dan dua sumber arus *direct current* (DC), serta menggunakan elektroda Pb/PbO₂ dengan rangkaian paralel. Penelitian ini telah melakukan penentuan voltase, kuat arus, jarak elektroda, dan waktu elektrolisis untuk menurunkan kadar surfaktan *Linear Alkyl Benzene Sulfonates* (LAS) pada limbah *laundry*. Hasil penelitian menunjukkan bahwa persentase penurunan kadar surfaktan dengan dua sumber arus DC lebih efektif, yang maksimal pada voltase 12 volt, arus 10 A, jarak elektroda 2 cm, dan waktu elektrolisis selama 25 menit, dengan penurunan sebesar 99,96%. Sedangkan, pada penurunan kadar surfaktan dengan satu sumber arus DC, maksimal di voltase 12 volt, arus 10 A, jarak elektroda 2 cm, dan waktu elektrolisis yang lebih lama, yakni 60 menit, dengan penurunan surfaktan sebesar 99,75%.

Kata kunci: elektrolisis, limbah *laundry*, surfaktan



ABSTRACT

Laundry waste has surfactant levels that exceed the limit quality standards. Therefore, it is necessary to degrade it before being discharged into territorial water, so there are no negative impacts on the environment. This research was performed by electrolysis method using one and two direct currents (DC) sources, then use Pb/PbO₂ electrodes in a parallel circuit. This research has determined the voltage, current, electrode distance, and electrolysis time to reduce the surfactant level of Linear Alkyl Sulfonates (LAS) in laundry waste. The results showed that the percentage decrease in surfactant levels with two DC sources was more effective, the maximum degradation reaches at 12 volt, 10 A, 2 cm electrode distance, and 25 minutes electrolysis time, with a decrease of 99.96%. Meanwhile, a decrease in surfactant levels with one DC source was maximal at 12 volt, 10 A, 2 cm electrode distance, and a longer electrolysis time, which was 60 minutes, with a surfactant decrease of 99.75%.

Keywords: electrolysis, laundry waste, surfactant

