ABSTRAK

Limbah cair rumah pemotongan ayam memiliki nilai *Total Suspended Solids* (TSS), *Biochemical Oxygen Demand* (BOD), dan *Chemical Oxygen Demand* (COD) yang tinggi. Salah satu pengolahan untuk menurunkan nilai TSS, BOD, dan COD limbah cair rumah pemotongan ayam adalah dengan metode koagulasi menggunakan koagulan tawas atau [$KAl(SO_4)_2.12H_2O$]. Tawas diperoleh dari daur ulang limbah aluminium. Penelitian ini bertujuan untuk mengetahui konsentrasi KOH, H_2SO_4, suhu pemanasan, waktu pemanasan, dan berat limbah aluminium yang menghasilkan tawas paling banyak, serta untuk mengetahui persentase penurunan nilai TSS, BOD, dan COD limbah cair rumah pemotongan ayam setelah dilakukan proses koagulasi menggunakan koagulan tawas hasil daur ulang limbah aluminium. Hasil penelitian menunjukkan tawas yang paling banyak diperoleh pada konsentrasi KOH 25%, H_2SO_4 7 M, waktu pemanasan 15 menit, suhu pemanasan 75 ^oC, dan berat sampel 3 gram dengan persentase penurunan TSS sebesar 95,67%; BOD sebesar 76,60%; dan COD sebesar 96,27%.

Kata Kunci : aluminium, koagulasi, limbah cair, rumah pemotongan ayam, tawas

ABSTRACT

Chicken slaughterhouse wastewater has a high value of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), and Chemical Oxygen Demand (COD). One of wastewater treatments to reduce the TSS, BOD, and COD value of the chicken slaughterhouse wastewater is the coagulation method using alum coagulant or $[KAl(SO_4)_2.12H_2O]$. *Alum is obtained from recycling aluminium waste. This research aims to determine the concentration of KOH,* H_2SO_4, *heating temperature, heating time, and weight of aluminium waste which produces the most alum, and to determine the percentage reduction in TSS, BOD, and COD values of chicken slaughterhouse liquid waste after the coagulation process was carried out using alum coagulant from recycled aluminium waste. The results showed that the most alum was obtained at a KOH concentration of 25%,* H_2SO_4 *7M, heating time of 15 minutes, heating temperature of 75* ^oC, *and sample weight of 3 grams with a TSS reduction percentage of 95.67%; BOD of 76.60%; and COD of 96.27%.*

Keywords **:** *aluminium, coagulation, wastewater, chicken slaughterhouse, alum*