ABSTRAK

Anshori Nur Hidayat. Uji Kinerja Pengolah Limbah *Laundry Filter 1.0* Pada Unit Pengolahan Awal. Dibimbing oleh Andik Yulianto, S.T,. M.T. selaku pembimbing 1 dan Lutfia Isna A, S.Si,. M.Sc. selaku pembimbing 2.

Air limbah *laundry* yang dibuang langsung ke lingkungan akan menimbulkan dampak buruk terhadap lingkungan. Salah satu dampak yang dapat ditimbulkan dari deterjen ialah eutrofikasi. Oleh karena itu perlu adanya suatu metode pengolahan limbah *laundry* yang efisien. Salah satunya menggunakan teknologi filtrasi. Tujuan dari penelitian adalah melakukan analisa terhadap penurunan kadar BOD, COD, Surfaktan, Kekeruhan, pH, suhu pada tahap *pre-treatment*, mengetahui pengaruh ketebalan media yang *evisien* pada teknologi *pre-treatment*, dan melakukan analisis terhadap performa *pre-treatment* dalam penurunan parameter pada keseluruhan kerja pada reaktor *laundry* filter 1.0. Metode uji yang digunakan ialah SNI, kemudian proses *running* alat menggunakan metode *Batch,* dan *Kontinyu*. Pengolahan awal menggunakan teknologi filtrasi mampu menurunkan konsentrasi surfaktan, BOD, COD, kekeruhan. Perbedaan ketebalan media filter tidak menunjukkan selisih konsentrasi/persen removal yang besar. Media filter dengan ketebalan A,ijuk (5cm), pasir halus (20 cm), pasir kasar (10 cm), arang aktif (15 cm), kerikil (10 cm) menunjukkan persen removal sebesar, surfaktan 60,2 %, COD 14 %, BOD 46,3 %, kekeruhan 77 %. Kemudian ketebalan B dengan tebal media filter, ijuk (5 cm), pasir halus (25 cm), pasir kasar (15 cm), arang aktif (10 cm), kerikil (10 cm), menunjukkan hasil persen removal sebesar, surfaktan 61,45 %, COD 38 %, BOD 59,2 %, kekeruhan 81,75 %. Hasil *running* reaktor menunjukkan performa yang cukup baik, dengan hasil penurunan surfaktan sebesar 36 %, COD 13,8 %, kekeruhan 41 % pada bak penampung.

Kata kunci : BOD, COD, Filtrasi, Kekeruhan, Limbah *laundry*, Surfaktan.

"Halaman ini sengaja dikosongkan"

ABSTRACT

Anshori Nur Hidayat. Laundry Filter Waste Processing Performance Test 1.0 in the Initial Treatment Unit. Supervised by Andik Yulianto, S.T., M.T. as supervisor 1 and Lutfia Isna A, S.Si., M.Sc. as supervisor 2.

Laundry wastewater discharged directly into the environment will harm the environment. One effect that can be caused by detergents is eutrophication. Therefore it is necessary to have an efficient laundry waste treatment method. One of them uses filtration technology. The purpose of this research is to analyze the decrease in levels of BOD, COD, surfactants, turbidity, pH, temperature in the pre-treatment stage, determine the effect of the thickness of the revised media on pre-treatment technology, and conduct an analysis of the performance of pre-treatment in decreasing the parameters at overall work on the laundry filter reactor 1.0. The test method used is SNI, then the process of running the tool uses the Batch method, and Continuous. Initial treatment using filtration technology can reduce the concentration of surfactants, BOD, COD, turbidity. The difference in the thickness of the filter media does not indicate a large difference. Filter media with thickness A, palm fiber (5cm), fine sand (20 cm), coarse sand (10 cm), activated charcoal (15 cm), gravel (10 cm) showed a percent removal of, surfactant 60.2%, COD 14 %, BOD 46.3%, turbidity 77%. Then thickness B with thick filter media, fibers (5 cm), fine sand (25 cm), coarse sand (15 cm), activated charcoal (10 cm), gravel (10 cm), showed the results of percent removal of, surfactant 61, 45%, COD 38%, BOD 59.2%, turbidity 81.75%. The results of running the reactor showed a fairly good performance, with the result of a decrease in surfactant of 36%, COD of 13.8%, turbidity of 41% in the reservoir.

Keywords: BOD, COD, Filtration, Laundry wastewater, Surfactant, Turbidity,