

EVALUATION OF WASTEWATER TREATMENT INSTALLATIONS
ENVIRONMENT OF SMALL TANNERY INDUSTRIES (LIK) AT MAGETAN
REGENCY IN 2024

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ABSTRACT

The leather tanning process produced wastewater that could pollute the environment. The WWTP system with activated sludge used at the UPT Leather Industry in Magetan Regency had COD and NH₃ parameters that did not meet the quality standards for leather tanning industry wastewater. The recorded outlet data from the leather tanning production process had TSS values of 54 mg/L, BOD of 60.55 mg/L, NH₃ of 71.65 mg/L, and COD of 307,4 mg/L. Additionally, there was a strong odor when passing through the WWTP. This study aimed to evaluate the performance of the UPT Leather Industry and Leather Products WWTP.

The evaluation was carried out using data collection techniques with the composite sampling method and a quantitative research design. Sampling measured parameters such as pH, temperature, BOD, COD, TSS, FOG, and NH₃. These parameter measurements were adjusted according to the existing wastewater treatment plant units. Data analysis was aligned with residence time criteria, removal efficiency, and the leather tanning quality standards outlined in the East Java Governor Regulation Number 52 of 2014.

The research result indicated that the WWTP at the Leather Tanning Industrial Estate (LIK) was unable to reduce BOD, COD, and TSS parameters as they still exceeded the quality standards. Additionally, only two units of the WWTP met the design residence time criteria; settling tanks I and II, and the filtration tank. The other units did not meet the design criteria.

Wastewater treatment in the leather tanning industry can be evaluated and improved. One approach is to use wastewater treatment methods such as MBBR or MBR and modification such as recycling activated sludge, as well as monitoring the inflow of wastewater into the treatment plant. Monitoring wastewater inflow and increasing the volume of treatment plant units for the equalization tank, aeration tank, secondary settling tank, and tertiary settling tank can also be implemented.

Keywords : WWTP, leather tannery, waste water, evaluation

Bibliography : 64 (61 Journals, 2 Books, 1 Regulation)

EVALUASI INSTALASI PENGOLAHAN AIR LIMBAH
LINGKUNGAN INDUSTRI KECIL (LIK) PENYAMAKAN KULIT DI
KABUPATEN MAGETAN TAHUN 2024

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ABSTRAK

Proses penyamakan kulit menghasilkan air limbah yang dapat mencemari lingkungan. Sistem IPAL dengan *activated sludge* yang digunakan di UPT Industri Kulit Kabupaten Magetan terdapat parameter COD dan NH₃ yang belum memenuhi standar baku mutu air limbah industri penyamakan kulit. Data pencatatan *outlet* dari proses produksi penyamakan kulit memiliki nilai TSS sebesar 54 mg/L, BOD 60.55 mg/L, NH₃ 71.65 mg/L, dan COD 307.4 mg/L. Selain itu, terdapat bau menyengat ketika melewati IPAL tersebut. Penelitian ini bertujuan untuk mengevaluasi kinerja IPAL UPT Industri Kulit dan Produk Kulit.

Evaluasi dilakukan dengan teknik pengumpulan data menggunakan metode *composit sampling* dengan desain penelitian kuantitatif. Sampling dilakukan pengukuran terhadap parameter pH, suhu, BOD, COD, TSS, FOG, dan NH₃. Pengukuran parameter tersebut disesuaikan dengan unit IPAL yang ada. Analisis data disesuaikan dengan kriteria waktu tinggal, efisiensi removal, dan standar baku mutu penyamakan kulit pada PERGUB JATIM Nomor 52 Tahun 2014.

Hasil penelitian menunjukkan bahwa IPAL LIK Penyamakan Kulit ini belum bisa menurunkan parameter BOD, COD, dan TSS karena masih melebihi baku mutu. Selain itu, hanya dua unit IPAL yang memenuhi kriteria desain waktu tinggal yaitu bak pengendap I dan II, serta bak filtrasi. Unit lainnya masih belum memenuhi kriteria desain.

Pengolahan air limbah di industri penyamakan kulit dapat melakukan evaluasi dan perbaikan. Salah satunya dengan menggunakan pengolahan air limbah seperti MBBR atau MBR dan modifikasi berupa *recycle activated sludge*, serta memantau masuknya debit air limbah ke dalam IPAL. Melakukan pemantauan debit air limbah dan penambahan volume unit IPAL untuk bak ekualisasi, bak aerasi, bak pengendap II, serta bak pengendap III.

Kata Kunci : IPAL, Penyamakan kulit, air limbah, evaluasi

Daftar Pustaka : 64 (61 Jurnal, 2 Buku, 1 Peraturan)