

AN OVERVIEW OF TANNERY WASTEWATER TREATMENT IN REDUCING TOTAL AMMONIA (NH₃-N) AND TOTAL CHROMIUM (Cr) CONCENTRATION AT THE PIYUNGAN INTEGRATED WASTEWATER TREATMENT PLANT 2025

Intania Putri Sabilla Alif¹, Haryono², Ibnu Rois³, Tri Mulyaningsih⁴
Environmental Health Department, Health Polytechnic of
the Ministry of Health Yogyakarta
Tata Bumi Street No.3, Banyuraden, Gamping, Sleman,
Special Region Yogyakarta
email : intaniaputri78@gmail.com

ABSTRACT

Background : *One of the impact of tannery wastewater is water pollution, caused by high concentration of total ammonia (NH₃-N) and total chromium (Cr) in the effluent. Therefore, it's crucial to treat this wastewater before discharging it into the environment. The Piyungan Integrated Wastewater Treatment Plant (IPAL) is one facility that processes this wastewater. IPAL employs pre-treatment, primary treatment, secondary treatment, and tertiary treatment processes to help reduce pollutants.*

Objective : *To determine how tannery wastewater treatment reduces total ammonia and total chromium concentration at the Piyungan Integrated Wastewater Treatment Plant (IPAL).*

Methods : *This study uses a descriptive and observational methodologies. It examines the role of wastewater treatment in reducing total ammonia (NH₃-N) and total chromium (Cr) concentration.*

Results : *The average reduction in total ammonia (NH₃-N) concentration was 68.25 mg/L, or 78.19%. For total chromium (Cr), the reduction was 48.158 mg/L, or 99.65%. Both parameters showed a decrease. While total ammonia (NH₃-N) concentration decreased, they still did not meet the quality standard. However, total chromium (Cr) concentration decreased and met the quality standard.*

Conclusion : *Both total ammonia and total chromium levels decreased, but the total ammonia parameter still didn't meet the quality standard*

Keywords: *Tannery Wastewater, Wastewater Treatment Plant, Total Ammonia, Total Chromium*

GAMBARAN PENGOLAHAN LIMBAH CAIR KULIT DALAM PENURUNAN KADAR AMONIA TOTAL (NH₃-N) DAN KROM TOTAL (Cr) DI IPAL TERPADU PIYUNGAN TAHUN 2025

Intania Putri Sabilla Alif¹, Haryono², Ibnu Rois³, Tri Mulyaningsih⁴
Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta,
Jl. Tatabumi No.3 Banyuraden, Gamping, Sleman
email : intaniaputri78@gmail.com

ABSTRAK

Latar Belakang : Salah satu dampak dari limbah cair penyamakan kulit adalah pencemaran air yang disebabkan dari tingginya kadar amonia total (NH₃-N) dan krom total (Cr) didalam limbah cair, maka dari itu sangat penting untuk dilakukan pengolahan terlebih dahulu sebelum dibuang ke lingkungan. Salah satu pengolahan limbah cair yang dilakukan yaitu pada IPAL Terpadu Piyungan. Pada IPAL ada proses *pre treatment*, *primary treatment*, *secondary treatment*, dan *tertiary treatment* yang membantu dalam menurunkan polutan

Tujuan : Mengetahui pengolahan limbah cair kulit dalam menurunkan kadar amonia total dan krom total di IPAL Terpadu Piyungan

Metode : Penelitian ini menggunakan metode deskriptif dan observasi. Penelitian ini menguji peran pengolahan limbah cair dalam menurunkan parameter amonia total (NH₃-N) dan krom total (Cr)

Hasil : Rata-rata penurunan kadar amonia total (NH₃-N) yaitu sebesar 68,25 mg/L atau 78,19% sedangkan krom total (Cr) yaitu sebesar 48,158 mg/L atau 99,65%. Kedua parameter tersebut mengalami penurunan . Pada parameter amonia total (NH₃-N) terjadi penurunan namun masih belum memenuhi baku mutu sedangkan pada parameter krom total (Cr) terjadi penurunan dan sudah memenuhi baku mutu.

Kesimpulan : Terjadi penurunan kadar pada kedua parameter amonia total dan krom total tetapi pada parameter amonia total masih belum memenuhi baku mutu

Kata Kunci : Limbah Cair Penyamakan Kulit, IPAL, Amonia Total, Krom Total