

PEMANTAUAN KUALITAS LIMBAH CAIR INDUSTRI TAHU DI KAYEN, SINDUMARTANI, NGEMPLAK, SLEMAN, DAERAH ISTIMEWA YOGYAKARTA

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INTISARI

Latar Belakang: Limbah cair industri tahu mengandung bahan organik tinggi. Pembuangan langsung tanpa pengolahan berpotensi menurunkan kualitas air dan mencemari lingkungan. Industri tahu belum memiliki Instalasi Pengolahan Air Limbah (IPAL), sehingga limbah cair dialirkan langsung ke sungai.

Tujuan: Mengetahui kualitas limbah cair berdasarkan parameter fisika dan kimia serta beban pencemar harian limbah cair industri tahu di Kayen, Sindumartani, Ngemplak, Sleman, Daerah Istimewa Yogyakarta.

Metode: Jenis penelitian ini adalah survei deskriptif dengan pendekatan observasional. Pengumpulan data melalui observasi, wawancara, pengukuran lapangan, dan pemeriksaan laboratorium. Sampel limbah cair diambil pada titik *outlet* dengan teknik *composite sampling* sebanyak tiga kali. Parameter yang diperiksa meliputi BOD, COD, TSS, TDS, pH, dan suhu, kemudian dibandingkan dengan baku mutu Peraturan Daerah Istimewa Yogyakarta Nomor 7 Tahun 2016.

Hasil: Debit limbah 11,97m³/hari. Nilai rata-rata parameter fisika: TSS 831,6 mg/L, TDS 826 mg/L, suhu 33,16°C. Parameter kimia: BOD 3.676,6 mg/L, COD 7.770,8 mg/L, pH 4,47. Berdasarkan Perda DIY Nomor 7 Tahun 2016, BOD, COD, TSS, pH, dan debit limbah tidak memenuhi syarat, sedangkan TDS dan suhu memenuhi syarat. Beban pencemar: BOD 220,04 kg/ton, COD 465,08 kg/ton, TSS 49,77 kg/ton, TDS 49,43 kg/ton.

Kesimpulan: Kualitas limbah cair industri tahu belum memenuhi baku mutu Perda DIY Nomor 7 Tahun 2016. Parameter BOD, COD, TSS, pH, dan beban pencemar melampaui ambang batas, sehingga diperlukan pengolahan limbah cair sebelum dibuang ke badan air.

Kata Kunci: limbah cair industri tahu, BOD, COD, TSS, beban pencemar.

MONITORING THE QUALITY OF TOFU INDUSTRIAL WASTEWATER IN KAYEN, SINDUMARTANI, NGEMPLAK, SLEMAN, SPECIAL REGION OF YOGYAKARTA

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ABSTRACT

Background: Industrial wastewater from tofu production contains high levels of organic matter. Direct discharge without treatment has the potential to degrade water quality and pollute the environment. The tofu industry does not yet have a wastewater treatment plant (WWTP), so liquid waste is discharged directly into the river.

Objective: To determine the quality of wastewater based on physical and chemical parameters, as well as the daily pollutant load of tofu industry wastewater in Kayen, Sindumartani, Ngemplak, Sleman, Special Region of Yogyakarta.

Method: This study is a descriptive survey using an observational approach. Data were collected through observation, interviews, field measurements, and laboratory analysis. Wastewater samples were collected at the outlet using composite sampling techniques on three occasions. The parameters examined included BOD, COD, TSS, TDS, pH, and temperature, which were then compared with the quality standards set forth in Special Region of Yogyakarta Regulation No. 7 of 2016.

Results: The wastewater flow rate is 11,97 m³/day. Average values of physical parameters: TSS 831.6 mg/L, TDS 826 mg/L, temperature 33.16°C. Chemical parameters: BOD 3.676,6 mg/L, COD 7.770,8 mg/L, pH 4,47. Based on DIY Regional Regulation No. 7 of 2016, BOD, COD, TSS, and pH do not meet the requirements, while TDS and temperature the requirements. Pollutant load: BOD 220,04 kg/ton, COD 465,08 kg/ton, TSS 49,77 kg/ton, TDS 49,43 kg/ton.

Conclusion: The quality of tofu industry wastewater does not meet the quality standards. Parameters BOD, COD, TSS, pH, and pollutant loads exceed the threshold limits, so wastewater treatment is required before discharge.

Keywords: tofu industry wastewater, wastewater quality, BOD, COD, TSS, pollutant load.