

**Evaluasi Modifikasi Teknologi Dalam  
Penerapan Produksi Bersih di Industri Tahu  
(Studi di Industri Tahu Ndoyo, Banguntapan, Bantul)**

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**INTISARI**

Industri tahu di Daerah Istimewa Yogyakarta merupakan industri skala kecil dan menengah. Industri kecil dan menengah dikarakteristikan sebagai industri dengan tingkat efisiensi energi yang rendah dan tingkat pencemaran yang tinggi. Permasalahan yang sedang dihadapi oleh industri tahu Ndoyo saat ini adalah kurang optimalnya efisiensi penggunaan bahan baku air dan tingginya nilai parameter limbah seperti *Chemical Oxygen Demand* (COD), *Total Suspended Solid* (TSS), *Total Dissolved Solid* (TDS), serta pH pada limbah cair yang dihasilkan dari hasil proses produksi. Salah satu upaya yang dapat dilakukan dalam mengatasi permasalahan tersebut adalah dengan melakukan penerapan konsep produksi bersih.

Tahapan penerapan konsep produksi bersih dilakukan dengan menyusun neraca massa, melakukan analisis efisiensi produksi, analisis kinerja lingkungan, analisis biaya produksi dan analisis konsumsi energi sebelum dan sesudah adanya implementasi modifikasi teknologi. Tujuan penelitian ini yaitu untuk membantu mengefisiensikan penggunaan bahan baku air dalam proses produksi, membantu mengurangi pencemaran yang diakibatkan oleh limbah cair, membantu menurunkan konsumsi energi pekerja dan menurunkan biaya produksi dengan mengimplementasikan modifikasi teknologi.

Hasil penilaian penggunaan bahan baku air menurun 14,09%, Beban Pencemaran *Chemical Oxygen Demand* (COD) menurun 24,28%, *Total Suspended Solid* (TSS) menurun 61,42% dan *Total Dissolved Solid* (TDS) menurun 24,41%. Rata-rata tingkat konsumsi energi pekerja menurun 5,26%. Profit industri meningkat 25,53% setelah modifikasi teknologi.

**Katakunci : modifikasi teknologi, produksi bersih, limbah industri**

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## Evaluation of Technology Modification In Application of Cleaner Production in Tofu Industry (Case Study on Ndoyo's Tofu Industry, Banguntapan, Bantul)

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### ABSTRACT

In Yogyakarta, tofu industries right now still on small and medium scale of production. These small and medium scale industries characterized as industries with low energies efficiency and high environment-pollutants effect. That was some of problems faced by Ndoyo's Tofu Industry. In there, the efficiency of water usage as supporting material has not been optimized by the owner. Also, the result of Chemical Oxygen Demand (COD), Total Suspended Solid (TSS), Total Dissolved Solid (TDS), and pH from waste tested shown that bad quality of waste produced from the industry. One of the solution can be afford to this problems is with implementing the cleaner production concept.

The stages of implementing cleaner production concept by making the mass balance, production efficiency analysis, ecology analysis, cost production analysis, and energy consumption analysis before and after the technology modification implementation. There are several goals of this research, to help Ndoyo's tofu industry to improve efficiency of water usage, decrease the environment-pollutant effect by liquid waste, decrease the energy consumption for the workers, and decrease the cost production.

The final results after implementing the technology modification shown that water usage for tofu-making process was decrease 14,09%. Pollution expenses of Chemical Oxygen Demand (COD) was decrease 24,28%, Total Suspended Solid (TSS) was decrease 61,42% and Total Dissolved Solid (TDS) was decrease 24,41%. The average levels of worker's energy consumption was decrease 5,26%. Industrial profit was increase 25,53% after implementing the technology modification.

**Keywords:** technology modification, cleaner production, industrial waste

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