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OPPORTUNITIES FOR WASTE MINIMIZATION IN A SELECTED TEXTILE WET PROCESSING INDUSTRY

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THE ABSTRACT

Waste minimization approach is one the win-win approaches available to the textile industry in sustainable development. For rational thinkers waste minimization is a smart investment and not an additional cost.

The qualitative and quantitative patterns of both the production process and the associated resource utilization are of utmost importance within the framework of waste minimization.

For the identification of suitable waste minimization options, a thorough analysis of all material, water and energy balances is essential. There exists a strong heterogeneity among different industrial sectors as well as sub-sectors in terms of the utilized raw materials, employed processes, water use and energy production/supply options. Therefore, the waste minimization assessment has to be industry-specific. In this research study, waste minimization in a textile wet processing facility is investigated.

Case study approach was followed to verify and analyze the waste minimization audit. Detailed analysis of environmental performance related to a textile wet processing facility is presented here. The objective was to look at the textile wet processing in detail after selecting a typical facility and then analyze, ways and means of waste minimization. The first step is a "Waste minimization audit". A WM audit can program all aspects of a plant performance (i.e total facility audit) or can consider single or selected impacts (i.e water or energy audit) in detail.

Waste minimization opportunities could be of great importance for decreasing the waste pollution load and production costs. The case study has shown that various options should be applied. Some established heuristic rules have already been practiced in the textile wet processing industry, under study.

The results of the case study shows that there is a direct relationship to savings and rapid payback on investment, to that of the facility that carried out the waste minimization audit and implemented waste minimization options.

The case study and the results had answers to the following constraints faced by the facility and similar textile wet processing industries.

- High cost of production due to increased energy cost and effluent treatment cost.
- Need to be eco-friendly to attract export orders and to obtain ISO 9000 and ISO 14000 certifications to consolidate markets.
- Waste disposal methods without harming the environment.

The case study through a waste minimization audit, identified 61 waste minimization options with low, medium and high investment, mainly relating to resource conservation, and resource recovery.