RECP Best Practices Catalogue

Water management and heat recovery

Developed within the framework of MED TEST II

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

switchmed

The SwitchMed Programme is funded by the European Union

Best Practice - Water management and heat recovery

SECTOR:	**Textile & Readymade Garments**
SUBSECTOR:	Finishing of textiles
PRODUCTS	Textile finishing equipment, dyed yarn, acrylic chenilles
CATEGORY	Process control or modification
APPLICABILITY	Utilities

COMPANY SIZE	65 full-time Employees, 70 seasonal

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Description of the Problem (Base Scenario):	The water supply system of the plant works as follows: • The company pumps water from the 2 existing wells on the site, • This water is then softened • The water is stored in an underground basin. The temperature is about 23/25 °C depending on the season Water is pumped and sent to autoclaves Whenever the bath is emptied, it is first cooled to 60 °C by passing the fresh water through the same circuit as the steam. This cooling water that heats up goes to a recovery basin (water heated to an average of 45-50 °C) which will be used to feed the future dyeing baths. In addition, the water from the dye baths is discharged via several settling/cooling pits and evacuated to the sewerage network at a temperature of around 50 °C (not in accordance with the distributor's indirect discharge standards). It would also be well-advised to study the volumes of water needed for the cooling process.
Description of the Solution	It is recommended to modify the process so as to cool the bath only up to 90 °C, but at least 80 °C so as to have the cooling water containing more energy, and thus, warmer. Much of this hot water could be sent directly to boilers that consume between 5,000 to 6,000 litres per day. Thus the dye bath will be emptied at a temperature on the order of 80 °C and will be directed to the decanter and then a pump will transfer this volume to a heat exchanger. The amount of water required for the effective temperature will be available by this method. This new process is much faster for dyeing operations, which means productivity gains.

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Economic Gain	The reduction of thermal energy consumption concerns several points: • The makeup water for the boilers will have a temperature higher than 80 °C, • The water supplying the dyeing baths will already have a temperature higher than that obtained today (65-70 °C instead of 45-50 °C) • This does not include the reduction in dyeing time (productivity gains) The savings have been estimated to be about € 83,000/year. These savings are on the fuel consumed at the boiler (Fuel oil no. 2)
Environmental Gain	The environmental gain consists of a lower consumption of fuel oil which is estimated at around 50 tons per year. In addition, the temperature parameter of the liquid effluents will comply with the standards. This measure will enable a reduction in CO_2 emissions by 153 tons of CO_2e/year.
Health and Safety Impact	None

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Investment and Financial Indicators	Estimated Cost of a Waste Water Energy Source is about € 51,000 Or at Time for Return on Investment of 7 months
Suppliers	Imported
Other Aspects	Significant impact on steam consumption
Implementation and New Indicator	Scheduled for 2020