



MED TEST Case Study

## TEXTILE sector — TUNISIA

### TRAITEX

#### Company overview

TRAITEX is a textile finishing company that provides services for tubular stitches exclusively, both in cotton and polyester cotton, and also processes denim-washing articles with special effects.

Concerning stitches finishing products, the company works exclusively for the local market, whereas washed jeans products are exported. Its annual production in 2010 was estimated at 400 tons.

Aware since 2007 that its production costs were increasing because of utilities costs (water and energy), TRAITEX looked for a means to reduce them. The MED TEST project represented an opportunity to achieve this goal.

At the beginning of the project, TRAITEX had no cost accounting in place and no management system. Today, the company has engaged an Oeko-Tex certification programme and developed indicators for water, energy and material consumption.

#### Benefits

The MED TEST project has identified opportunities for annual savings worth \$US 111,836 in electricity, gas, water and chemicals, through an investment of about \$US 181,800. The average return on investment ranges between 6 months and 2 years. The identified measures are within the financing capacities of the company.

Energy costs have been reduced by 39% through the automation of the production process, the optimization of the correlation between laboratory and workshop, the installation of economisers on the boilers and of PTZ for regulating the gas pressure feeding the company. These actions had a direct positive effect upon water consumption (reduced by 19%) and chemical product consumption (reduced by 15%).



**“We would like to have more control over our production costs, mainly for water, energy and production materials; the TEST methodology helped us to achieve this goal.”**

M. SABBAGH, Director General of TRAITEX

Other environmental advantages have been achieved in terms of reduction of the wastewater pollution load by diminishing the consumption of chemical products. The optimization of product and dyestuff storage and the efficient management of preventive maintenance have allowed for an improvement in the production performance, in turn leading to a reduction of process losses and the realization of economic gains. These options are now under implementation in the company.

The implementation of the Oeko-Tex ecolabel standard 100, aimed at improving the choice of products based on their ecological merit, is underway.

MED TEST is a UNIDO green industry initiative to promote sustainability and competitiveness in the private sector in Egypt, Morocco and Tunisia. TEST integrated approach includes tools like resource efficiency and cleaner production, environmental management system and accounting, cleaner technology transfer and CSR.

Learn more about TEST approach at [www.unido.org](http://www.unido.org)

MED TEST is sponsored by the Global Environment Facility, the Italian Government and the MedPartnership.

## Saving opportunities

Measure	Economic key figures			Resource savings per year	
	Savings [USD/yr]	Investment [USD]	PBP [yr]	Water, Chemicals	Energy [MWh]
Optimization of laboratory activity	14 800	6 800	0.5	1,500 m <sup>3</sup> 5% chemicals	244
Installation of a boiler economizer	18 216	32 000	1.7		658
Automation of production machines	61 500	120 000	2	8,040 m <sup>3</sup> 10% chemicals	941
Installation of PTZ regulator on gas hub	2 320	5 000	2.2		114
Productivity optimization	15 000	18 000	1.2	4,500 m <sup>3</sup>	436
<b>TOTAL</b>	<b>111 836</b>	<b>181 800</b>	<b>1.6</b>		<b>2 393</b>

**Optimization of laboratory activity:** The project is to reactivate the spectrophotometer used for determining the colour nuances to be developed on the basis of the receipts, and for verifying the conformity of nuances. Optimization also concerns the small dyeing machines, by changing the alkali introduction system in order to allow the progressive introduction of alkali, thus passing from an all-in method that does not support the reproducibility in production to a system similar to that of the workshop. These changes allowed an annual gain of 1,500 m<sup>3</sup> in water, 244 MWh in energy and 5% in chemical products.

**Productivity optimization:** The project consists in working continuously in three shifts on a reduced number of machines (those considered the best). This will improve productivity for each machine, as well as the boiler efficiency, and will result in a productivity improvement (by 30%), and a reduction of energy and water consumption (respectively by 5% and 6%). The company has decided not to implement this action for the time being, due to resistance of its employees, who are not very favourable to change their actual working conditions.

**Automation of production machines:** Currently, dyeing machines are operated in a manual mode, and the functioning

parameters such as temperature, pressure, water volume and time are not well under control, which leads to problems in the dyeing process in terms of quality, costs and reproducibility. The automation of the process consists in installing monitoring mechanisms such as valves and temperature control instruments, and in automating them through the installation of microprocessors for better control. These works allow annual savings in water by 8,040 m<sup>3</sup>, in energy (941 MWh) and in chemicals (around 10%).

**Installation of regulators on the PTZ gas hub:** Fuelled with natural gas under a pressure of 20 bar over the national STEG network, the company is equipped with a 4 bar counting hub. The installation of a PTZ-type throughput regulator (pressure, temperature, nature of the gas) allows for the regulation of the corrective factor due to the varying temperature, which represents gains of 114 MWh/year.

**Boiler economizer:** The high temperature of boiler exhaust can be used to heat water over the installation of water/air heat exchangers (economizer) at the exits. The installation of the economizer will allow for savings of 658 MWh/year. The company will subsequently consider the implementation of this action.



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