



MED TEST Case Study

## TEXTILE sector — TUNISIA

### Textile finishing – STARWASH

#### Company overview

STARWASH is a fully export-oriented company for jeans fabrics dyeing and bleaching. Its production amounts to 2,000 pieces a day (reference year: 2010), divided into washing (80%) and dyeing (20%).

At project start-up, the company had no certification and was aware that its financial competitiveness was jeopardized by a poor environmental performance in terms of resources consumption and cost structure.

The project implementation enabled to single out several measures that allow saving substantial percentages of production inputs. Moreover, good practices were implemented to optimize chemicals consumption and reduce wastes.

#### Benefits

The MED TEST project has identified opportunities for annual financial savings of \$US 28,000 in electricity, gas, water and chemical products against an investment estimated at \$US 37,000. The payback period varies between 14 and 17 months.

Energy costs were reduced by 14% through a process intervention setting up a better lab-workshop correlation and the reduction of the dye bath ratio for some procedures.



**“Our company needs assistance to gain control over its consumptions and therewith its production costs. The project fully matches our expectations.”**

Habib JEBRI, Manager

The costs of water and chemicals are reduced respectively by 30% and about 17% through these actions on production process and the establishment of an improved preventive maintenance management system and of an automatic dosing system for chemicals.

The company has set up an environmental policy that integrates the cleaner production concept.

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]
Machines advanced programme control	8 800	10 000	1.2	2 600 m <sup>3</sup> water chemicals: 5%	110
Preventive maintenance	2 000	1 500	1.5	500 m <sup>3</sup> water chemicals: 2%	20
Partial reuse of rinsing waters	8 000	12 000	1.3	3 700 m <sup>3</sup> water	-
Lab-workshop correlation	10 000	14 000	1.4	1 000 m <sup>3</sup> water chemicals: 10%	220
<b>TOTAL</b>	<b>28 800</b>	<b>37 500</b>	<b>1.3</b>		<b>350</b>

**Machines advanced programme control:** Within the production cycle, the washing machines are equipped with programming control devices used in a manual mode through the operator's direct intervention. Advanced programming consists in setting up principal washing or drying programmes combined with sub-programmes for additions or adjustments, thus eliminating manual intervention and reducing error risk. This measure requires control valves, meters, probes, etc., to check the machines parameters. The gains concern a reduction of process time (by 25%), water consumption (by 2,600 m<sup>3</sup>/year), thermal energy (by 110 MWh/year) and chemicals (by 5%).

**Preventive maintenance:** The company has installed a tracking system for failures and machines consumption in consumables and spare parts. It also has set up an intervention schedule aiming to eliminate water and steam leaks as well as malfunctions engendering electric overconsumption or quality problems that result in losses of material or process input. This project thus facilitates savings in water (500 m<sup>3</sup>/year), energy (20 MWh/year) and chemicals (2%).

**Partial reuse of rinsing waters:** The washing machines are equipped with a double water exit. This option requires the installation of a rinsing water recycling system consisting in a gutter connected to the washing machines, a pipe connecting the gutter to a 40 m<sup>3</sup> capacity water recovery basin, a return pipe leading to the washing machines with a feed-in and feed-out branching system and water pumps. The water recovery amounts to 4,700 m<sup>3</sup>/year.

**Lab-workshop correlation:** This measure consists in controlling the correlation rate between laboratory and process and the optimization of dye recipes in the laboratory in order to prevent adjusting and redoing, which cause a loss of time, electricity, water, chemical products and therefore competitiveness. This action has achieved a 25% improvement of the lab-workshop correlation and therefore annual savings in terms of chemicals (10%), electricity (220 MWh) and water (14,800 m<sup>3</sup>).



**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION**  
 Environmental Management Branch  
 Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria  
 Telephone: (+43-1) 26026-0, Fax: (+43-1) 26926-69  
 E-mail: [unido@unido.org](mailto:unido@unido.org), Internet: [www.unido.org](http://www.unido.org)



**CENTRE TECHNIQUE DU TEXTILE (CETTEX)**  
 Avenue des industries, Z.I Bir El Kassaa,  
 B.P. 279, 2013 Ben Arous, Tunisia  
 Telephone : (+216) 71 38 11 33, Fax: (+216) 71 38 25 58  
 Email: [cettex@cettex.com.tn](mailto:cettex@cettex.com.tn), Web: [www.cettex.com.tn](http://www.cettex.com.tn)

