



MED TEST Case Study

## TEXTILE sector — TUNISIA

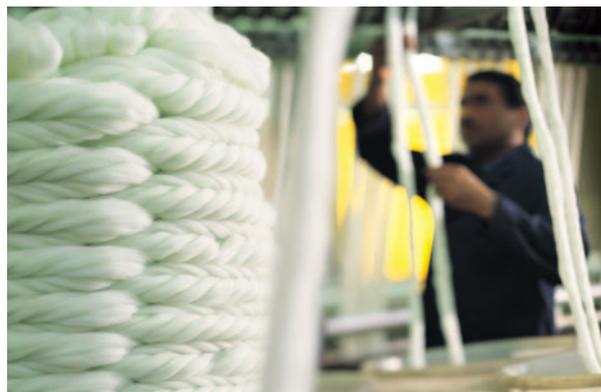
# Textile finishing – Garment Dyeing Service (GDS)

### Company overview

GDS is an export-reliant dye-works company specialised in jeans and knits. Its production amounts to 10,000 pieces a day (reference year: 2010), divided into jeans (80%) and knits (20%).

At project start-up, the company had no certification and was aware that its financial competitiveness was jeopardized by an excessive consumption of resources. MED TEST enabled the company to launch measures in order to reduce over-consumption as well as process losses.

The company is currently heading for the use of the most eco-friendly chemicals and the adoption of a product ecolabel such as Oeko-Tex standard 100.



**“This project is very timely because we have to cope with an important amount of waste and have to control consumptions. Our goal is to solve our problems linked with resource efficiency and environment.”**

Mr. Dany LALLEMAND, Manager

### Benefits

The MED TEST project has identified an opportunity for annual financial savings of \$US 91,000 in electricity, gas, water and chemical products against an investment estimated at \$US 139,000. The payback period varies between four months and three years.

Energy costs were reduced by 7% through an intervention on process facilitating a better lab-workshop correlation and the reduction of the dye bath ratio for several procedures.

The costs of water and chemicals are reduced by 24% and about 25% through these actions on production process, together with an improved preventive maintenance management system (an efficient good practice tool) and the installation of an automated dosing system for chemical products.

The company has set up an environmental policy that integrates the clean production concept. The ecological aspect has been taken care of by adopting Oeko-Tex standard 100, which implies that the company is orienting itself towards the most eco-friendly and least toxic chemicals.

Moreover, the measures taken by the company to improve and better manage production processes, such as the age and manual use of machines or the diversity of dyeing procedures, have helped to reduce the environmental and financial impact of process losses generated by the company's activity.

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]
Lab-workshop correlation	36 000	22 000	0.6	8,100 m <sup>3</sup> water Chemicals: 8%	770
Liquor ratio reduction for 6 machines	3 800	3 000	0.8	2,500 m <sup>3</sup>	142
Preventive maintenance	6 000	2 000	0.3	1,600 m <sup>3</sup> water Chemicals: 2%	55
Recovery and reuse of water in wool dyeing process	13 500	12 000	0.9	22,500 m <sup>3</sup> water	
Automated chemicals dosing in cotton section (11 machines)	32 000	100 000	3	Chemicals: 15%	
<b>TOTAL</b>	<b>91 300</b>	<b>139 000</b>	<b>1.5</b>		<b>967</b>

**Liquor ratio reduction for 6 machines:** This measure consists of liquor ratio switching from 1:12 to 1:8 for rinsing and softening baths, while pre-serving quality standards in all machines. This measure enables water and electricity savings of 2,500 m<sup>3</sup>/year and 142 MWh/year.

**Preventive maintenance:** This option implies the implementation of a tracking system for failures and machines consumption in consumables and spare parts. Preventive maintenance consists in the establishment of an intervention schedule aiming to eliminate water and steam leaks, as well as malfunctions engendering electricity overconsumptions or quality problems that result in losses of material or process input. This project generates savings in water (1,500 m<sup>3</sup>/year), energy (55 MWh/year) and chemicals (2%).

**Automated chemicals dosing in cotton section (11 machines):** The creation of a centralized station for dye dissolution, preparation of auxiliary products and distribution towards the 11 dyeing machines in the cotton workshop generates substantial

savings through an improved use of products and a reduction of their consumption by 15%.

**Lab-workshop correlation:** This measure consists of controlling the correlation rate between laboratory and workshop, facilitating the optimization of dye recipes in the laboratory in order to improve this ratio and prevent adjusting and redoing, which cause a waste of time, electricity, water, chemical products and therefore of productivity. The option has been implemented in one dyeing process (the “old” label, 80% of the whole cotton production) and has entailed a 30% improvement of the lab-workshop correlation and therewith savings in terms of water and electricity input (15%) and products (8%).

**Recovery and reuse of water in wool dyeing process:** This measure consisting in the retrieval of water used in certain wool dye-baths facilitates the retrieval and reuse of 15% of all process water. The rinsing baths will be reused within the preparatory stage. Water savings amount to 22,500 m<sup>3</sup> while financial gains add up to 19,000 DT.



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