



MED TEST Case Study

TEXTILE sector — TUNISIA

MEGASTONE

Company overview

MEGASTONE is specialized in jeans bleaching, dye-works and special effects treatments. It has a washing capacity of 12,000 pieces a day and exports 100% of its production.

At project start-up, the company, no longer meeting the environmental standards for wastewater, had lost its ISO 14001 certification. It was aware of a know-how deficit in terms of resources management and implementation of good practices; energy costs, for instance, had risen by 40% between 2007 and 2009.

Thanks to MED TEST, the company was able to revise its environmental policy and aspect register, so as to integrate cleaner production principles and good practices. The company is currently striving to make use of more environmentally friendly chemicals, in order to become certified Oeko-Tex Standard 100.

Benefits

MED TEST has identified annual savings opportunities of \$US 55,600 in electricity, gas, water and chemicals against an investment estimated at \$US 76,500. The pay-back period is expected between 4 and 26 months.

Energy costs have been reduced by 30% by installing an economizer at the boiler, operating the machines in automatic mode and insulating steam pipes.

The costs of water and chemicals have fallen off respectively by 10% and 12%. The preliminary improvement of the lab-workshop correlation will generate savings in water, chemicals and energy, by optimizing the laboratory recipes in order to directly reproduce them in production, by bettering automation level and batching precision, and by raising awareness among operators.



“As we are facing tough price competition, we are forced to keep our costs under control to remain on the market. MED TEST has given us insights on our hidden costs and helped us move towards significant saving opportunities, in order to maintain competitiveness.”

Abdelkader SOUALEH, General Director

Further environmental benefits have been achieved through revising the environmental policy to include cleaner production and identify new significant environmental aspects such as preventive maintenance, maintenance management for machines and enhancement of the implementation plan for efficient energy management.

Currently, a benchmarking system for tracking and measuring the consumption of water, electricity, gas and chemicals of the washing department is being installed in order to monitor consumption and follow up on performance indicators.

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

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]
Preventive Maintenance	1 000	3 000	0.3	Water: 900 m ³ Chemicals: 2%	30
Boiler economizer	20 600	4 000	2.2	-	1 042
Insulation of steam pipe network	9 500	11 400	1.6		482
Upgrades of the automation system of washing and drying machines	24 500	17 100	0.7	Chemicals: 10% Water: 3 000 m ³	304
TOTAL	55 600	35 500	1.4		1 858

Preventive maintenance: This measure consists of implementing a monitoring system for machine breakdowns and related consumption of spare parts and consumables. Preventive maintenance includes intervention planning for maintenance operations, aiming at the elimination of water or steam leaks and of operational problems that cause energy overconsumption or quality lapses inducing losses of materials and process inputs. This project allows for savings in water (900 m³/year), energy (30 MWh/year) and chemicals (2%).

Boiler economizer: The significant boiler flue gas temperature can be exploited to heat up water through the installation of heat exchangers (or economizers). The latter allow for energy savings of 1,042 MWh/year. This measure has been studied but not implemented yet.

Insulation of steam pipes: The steam network causes losses due to a lack of thermal insulation of the pipes, that add up to

5,71 therms/hour. In order to eliminate them, the plan is to insulate the steam pipes with rock wool subsequently covered by an aluminium duct. Energy savings will add up to 482 MWh/year, corresponding to about 7% of thermal energy consumption.

Upgrades of the automation system of washing and drying machines: The company plans to replace the washing and drying machines programmer, to change or repair the water levels of the washing machines and to install individual water meters as well as humidity control phials in the tumble dryers. Furthermore, centrifuges are to be equipped with time-out mechanisms, broken time-out hardware shall be repaired and the degree of residual humidity controlled, all to adjust centrifuging and drying times. The economic savings relate to a reduction per year of process duration (15%), consumption of water (3,000 m³), thermal energy (304 MWh) and chemical products (10%).



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