

As part of the SwitchMed programme, UNIDO supports industries in the Southern Mediterranean through the transfer of environmental sound technologies (MED TEST II) to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

## Tunisia

### SOTUCHAM

#### Leather sector

#### Context

Number of employees: 40

Key products: Finished chrome-tanned leather and finished chamois leather

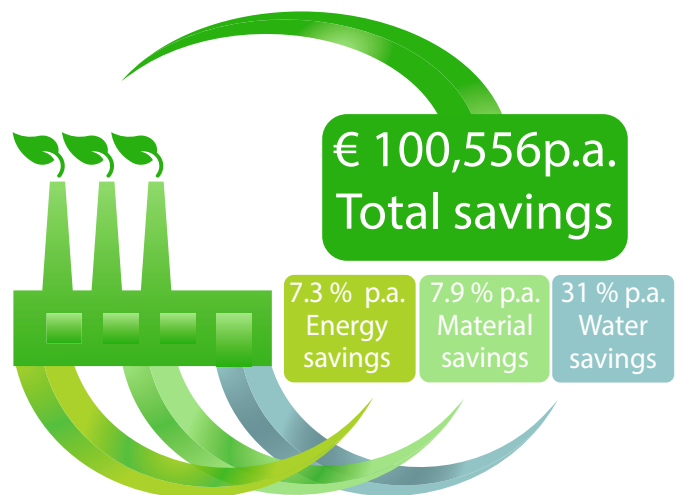
Main markets: 40% exported

The Société Tunisienne de Chamoisage (SOTUCHAM) was established in 1968, and operates in the leather (sheep and goat hide) and chamois leather tanning sector, with a daily capacity of 1,200 hides. The company is located in the Sidi Salem Industrial Zone, in the Governorate of Sfax. The company wanted to participate in the Med Test project in order to identify ways to improve as well as to reduce the pollution associated with their activities.

*“The TEST approach is in line with SOTUCHAM’s strategy regarding the sustainable development approach adopted by the company for the years to come.”*

Ben Arab Fakher  
General Management

#### Benefits



Graphic: UNIDO

The MED TEST II project has identified total annual water, energy and raw materials (chemicals) savings of EUR 100,556, against an estimated investment of EUR 196,525.

The return on investment term varies between 0 months (immediate) and 3 years. 66% of the identified projects have been implemented by the company, or are still being implemented. Other projects, individual production options, are still under study.

Other environmental benefits have been achieved in terms of a reduction in wastewater pollutants following the entry into operation of a cage fuller. The latter has enabled a reduction in the quantity of salt present in the raw hides before these enter production of 20%, and a reduction in water pollution equivalent to 31% of DOB<sub>5</sub> and 30% of COD. Hygiene and safety are crucial to the company, and because of this, a treatment system for the toxic gases (H<sub>2</sub>S) emitted by the fullers has been put in place, and safely pushbuttons have been installed on the machines.

## Saving opportunities<sup>1</sup>

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
Production process optimisation	45,960	13,600	3.4	9,525 t chemical products	-	Total: 40.54 t DOB <sub>5</sub> 105.44 t COD 130.5 t Solid waste
Solid waste minimisation and water consumption optimisation	92,979	51,200	1.8	6.4 t chemical products 11,050 m <sup>3</sup> water	-	
Acquisition of new technologies and improvements to existing process	56,000	34,800	1.6	110 t chemical products 5,170 m <sup>3</sup> water	-	
Energy consumption optimisation	1,586	956	1.6	-	14	
<b>TOTAL</b>	<b>€ 196,525</b>	<b>€ 100,556</b>	<b>1.9</b>	<b>126 t raw materials 16,220 m<sup>3</sup> Water</b>	<b>14 MWh</b>	

<sup>1</sup> Numbers based on production value from 2015

*“The benefits of these measures are beginning to make themselves felt and we aim to continue this improvement by rolling out the TEST approach across the rest of the group.”*

Ben Arab Fakher  
General Management

### Production process optimisation

This set of measures consists of installing a hide loading tray in the fuller and another at the hide recovery point at the exit from the fullers, as well as the installation of a shavings conveyor in order to facilitate the discharge of waste beneath the machine, a task which is currently performed manually. Another measure includes an improvement in the chrome absorption rate by the skins to achieve 90% absorption, which influences both the physical and chemical parameters (temperature and pH).

### Solid waste minimisation and water consumption optimisation

The measures to be performed are the installation of a main counter at the wells and department-based divisional counters, the introduction of a dosage and water control system at the fullers, and the upgrading and re-entry into service of the sewage-treatment facility, which will enable a portion of the treated water to be recycled. On the other hand, solid waste and salt in the effluent will be minimised through the entry into operation of one of the existing cage fullers.

Waste associated with the fleshings will be recovered in order to produce grease and protein for sale on the market, using a strip fleshing treatment unit.

### Acquisition of new technologies and improvements to existing process

The installation of a treatment system for toxic gases (H<sub>2</sub>S) produced by the fullers during the pickling stage has enabled a significant reduction in gaseous releases (COV) of approximately 75%. Skinning with hair recovery consists of reducing the use of sulphur in order to recover and make use of the hair in the production of fertilisers for agricultural applications. The new salt- and sulphuric acid-free pickling method uses concentrated buffered bicarboxylic organic acids. This prevents the skins from swelling (instead of sodium chloride). The other project aims to eliminate chromium in tanning, by using the “Wet White” technology. In addition, it also intends to minimise the use of chemicals, by up to 10%, and to improve the quality of the final product by applying an internal polypropylene coating on the fullers.

### Energy consumption optimisation

The energy efficiency measures mainly involve the installation of thermal lines in order to prevent heat loss. On the other hand, the installation of a 50 kVA, 4 radian automated capacitor battery enables the compensation of reactive energy. A review of the applied power is therefore intended to achieve a reduction in the annual electricity bill of approximately 10%.

### For more information, contact:



**United Nations Industrial Development Organization**  
Department of Environment  
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria  
Telephone: (+43-1) 26026-0, Fax: (+43-1) 26926-69  
E-mail: C.GONZALEZ-MUELLER@unido.org  
Web: www.unido.org



**Centre National du Cuir et de la Chaussure (CNCC)**  
17, Rue du Cuir, ZI Sidi Rézig, 2033 Mégrine  
TUNISIA  
Telephone : +216 71 432 255 Fax : +216 71 432 283  
Mail : info@cnccleather.nat.tn  
Web : www.cnccleather.nat.tn