



MED TEST Case Study

LEATHER sector — TUNISIA

Tannery industry — Tanneries Mégisseries du Maghreb (TMM)

Company overview

TMM, founded in 1976, is part of a Tunisian holding company. Heavily export-reliant, it operates in the leather sector and annually produces about 20 million square feet of ovine and bovine leather.

The company joined MED TEST in order to identify opportunities for improvement, reduce pollution and integrate Best Technologies Available (BTA) and Good Environmental Practices (GEP) into the production process.

The company was already certified ISO 9001 at project's start. Taking advantage of its participation in MED TEST, it has initiated an Environmental Management System (EMS) in conformity with ISO 14001 and plans to implement Corporate Social Responsibility (CSR) in the near future, following ISO 26000 standards.

Benefits

The MED TEST project has identified an opportunity for \$US 446,800 of annual savings in electricity, gas, water and chemical products against an investment estimated at \$US 523,000. The return on investment is expected within a little more than one year. The identified cleaner production measures are under implementation.

Energy costs have been reduced by 15% through fuel switch to natural gas, insulation of steam and hot water distribution systems, installation of an economizer at the boiler, recovery of compressors heat losses into the dryer section, as well as the adjustment of the power factor.

The financial gains resulting from the reduced use of chemical products (e.g. chrome) and auxiliary products such as salt in the production process are estimated at 10%.

Water costs have been reduced by 14% thanks to the optimization of water consumption in the drums and



“Aiming at the principle of ‘Ecological Tanning’, TMM has adopted TEST for a profitable environmental management approach.”

Mr Sofiène BEN AMMAR, Deputy CEO

according to the hourly tariffs, the reuse of vacuum dryer condensates as well as the retrieval of process bathwaters (soaking baths) and their reuse.

Other environmental improvements have been achieved in terms of reduction of wastewater pollution loads, corresponding to approximately: 50% of chlorides through the use of punched drums and the installation of a refrigerated chamber for fresh hides storage, 39% of BOD₅ and 25% of COD in comparison to the annual loads, resulting mainly from the separation and retrieval of hairs before the process, the processing of sulphide and chrome baths, and the softening of process water (dyeing). These measures have cut operating costs of the wastewater treatment plant and improved its efficiency through annual reductions of 100 tons COD and 35 tons of nitrogen.

Parallel to the identification of minimization opportunities, the company has charted its own environmental policy and is implementing an EMS in conformity with ISO 14001 standards, thanks to the identification of further areas of improvement.

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]
Reduced use of salt through drumming and cold conservation of skins	75 000	92 000	1.2	965 tons salt	-
Water savings	47 000	150 000	3.2	Water 46 000 m ³	-
Steam system and compressors	222 800	46 000	0.2	-	1 705
Valorization of splits	55 000	110 000	2	1 500 tons waste	-
Reuse of retrieved chrome	30 000	100 000	3.3	150 tons chrome	-
Hair retrieval	17 000	25 000	1.5	-	9
TOTAL	446 800	523 000	1.2		1 714

Reduced use of salt, drumming and cold conservation of skins: The installation of a cold chamber for fresh hides storage helps minimize or even completely eliminate salt as a conservation agent. This option provides for net savings of \$US 50,000/year, taking into account additional electricity costs. Moreover, the company acquired a punched drum facilitating the elimination of all conservation salt stuck on the skins before the soaking process. It allows for a 50% reduction of salt in all liquid effluents, and therefore of chloride, COD and BOD₅ loads.

Water savings: The tannery has implemented several measures to cut down water consumption, which include the optimization of water consumption in the drums, the recycling of soaking and rinsing baths from tanning and post-tanning processes and their reuse in similar processes. The installation of submeters at each process enables an increased consumption control as well as the easy detection of possible overconsumption.

Steam system and compressors: The tannery has focussed its efforts to cut down energy consumption through: the installation of a boiler economizer, the insulation of steam and hot water pipes, the recovery of heat losses from the compressor into the dryer, and the fuel switch to natural gas.

Valorization of splits waste: The tannery has put in place an equipment to process splits resulting from the fleshing processes valorizing 1,500 tons/year of this kind of waste. The splits are ground then heated up to 75°C. The obtained liquid is separated in 2 phases: one proteinaceous phase valorized as fertiliser and retanning agent, and one fat phase valorized in the soap industry and as leather nourishment product.

Reuse of retrieved chrome: This technique allows replacing 30% of the new chrome with no effect on quality, thus saving 150 tons/year of chrome otherwise disposed of with the sludge.

Hair retrieval: The retrieval of intact hair from the drum through the installation of a filtering and recirculation system of the liming baths permits to reduce wastewater pollution loads by approximately 40% of TSS, 30% of BOD₅, 25% of COD and 50% of sulphides. This allows for electricity savings within the sewage treatment plant of about \$US 8,000/year, corresponding to 48 tons of CO₂ per year and a 300 tons/year reduction of TSS.



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