

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.

Algeria

SAFILAIT

Food and beverages sector

Context

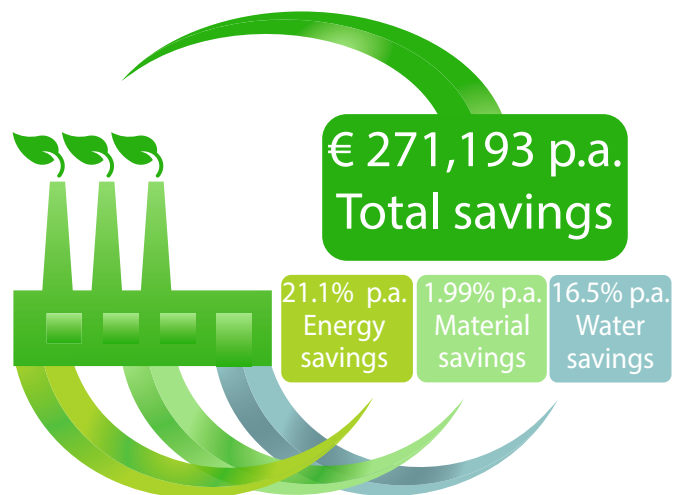
Number of employees:	147
Key products:	Milk, Lben, Soft Cheese, Fresh Cream
Main markets:	Local
Management standards:	ISO 22000

SAFILAIT is an S.a.r.l. founded in 2002 and specializes in milk and dairy products for the domestic market with a rich and varied range of products including milk; Lben; RAIB; cheese, cream cheese, cream, and butter. SAFILAIT works to provide consumers with high quality products.

“Motivated by the positive results achieved and the concrete benefits, both economic and environmental, we decided to duplicate the TEST approach on our new site and improvement measures were introduced. The efficient management of resources and cleaner production is now a determining factor that guarantees the sustainability of our activities.”

Amel Sefari
Research and Development Director

Benefits



Graphic: UNIDO

The MED TEST II project identified a total annual savings of 271,193 euros as a result of raw material and energy saving measures. The identified RECP measures require an ; overall investment of around € 289, 02, giving an average payback period (PBP) of 1.07 years on the investments.

The PBPs for the 27 identified RECP measures vary between 3 months and 4.6 years. 63 % of the 27 measures were selected for implementation by the management and 22 % of the measures were retained for further reviews.

The economic gains from the identified RECP measures will be around 1.99% from raw material costs, 21.1% from energy costs, and 16.5% on water expenditures.

The environmental gains will result in an annual reduction of 26.1% CO₂ emissions, 19.2% in solid waste generation, and 32.4% in waste water.

Encouraged by the results of the TEST project, the company intends to integrate the MFCA tool into the company's accounting system and proceed with introduction of an environmental management system in accordance with the requirements of standard ISO 14001 v. 2015.

Saving opportunities¹

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
Reduction of energy consumption	19,499	6,913	2.8	-	196	Total : 395 t CO ₂
Recovery of milk serum	148,760	199,620	0.7	1,266 t milk serum	-	
Operational control and production planning	36,055	26,228	1.4	52 t raw materials 1,678 m ³ water	-	
Use of standardized packaging	0	12,179	Immediate	7 t PE packaging	-	3,3 t waste
Reduction of water consumption	1,207	2,774	0.4	7,240 m ³ water	-	85.3 t DCO
Increased energy efficiency of pasteurizers	83,500	23,479	3.6	-	926	10,226 m ³ waste water
TOTAL	€ 289, 021	€ 271, 193	1.1	1,325 t raw materials 8,918 m³ water	1,122 MWh	

¹ Numbers based on production value from 2016

Reduction of energy consumption

A series of measures such as the installation of a compensation battery, the integration of frequency converters to supply the air compressors and the improvement of the refrigeration unit sealing allows for a reduction in electric energy consumption at the company level. In the same way, the improvement of the combustion efficiency of the boilers, the thermal insulation of pipes, valves and steam collector, the renovation of the degasser with reversion of hot condensates through the boiler and the installation of a heat saver enable the reduction of natural gas consumption as a source of thermal energy.

Recovery of milk serum

Of the various opportunities for recovery of whey from cheese production, three were retained by SAFILAIT for joint implementation. The first option is to skim the whey to recover the residual fat and prepare a cream of whey that will be placed on the domestic market as an innovative product, at the same time, tests are conducted to determine the fraction of whey that can be integrated into the other company products. Finally, the creation of a whey drying unit to produce whey powder is considered with the increase in production capacity. These measures make it possible to upgrade a by-product while reducing wastewater pollution by 18.8%.

Operational control and production planning

A new production planning favouring product-produced shoots and limiting frequent product changes on production lines has the advantage of reducing start-up and shutdown sequences as well as frequency of cleaning. Improved opera-

tional control by optimizing equipment settings such as the cream separator and filling machines and partial recovery of cleaning solutions (NaOH and HNO₃) make it possible to limit the wastage of raw materials, packaging materials and chemicals. These RECP measures also reduce waste water pollution and production of waste.

Use of standardized packaging

This step involves improving the technical specifications of polyethylene packaging used for milk packaging and strengthening control of these packages. The use of international standards packaging ensures an optimal quality of packaging with a saving of material. This results in a reduction of consumption of packaging materials by around 5%.

Reduction of water consumption

The main measures determined within this scope are: 1/ Re-use of final rinsing water from the CIP station for initial rinsing or for floor cleaning. 2/Use of pressure washers (Karcher type) as well as pressure guns at the tip of pipes and hoses for various cleaning. These measures enable an annual water saving of 12.7% and a reduction in the volume of wastewater to be treated.

Increased energy efficiency of pasteurizers

The company uses three plate heat exchangers for the pasteurization of its various products. The heat recovery sections in these three pasteurizers have yields of around 50%. The improvement steps increase the efficiency of these sections to at least 85%, which enable savings in electrical and thermal energy and reduction in greenhouse gas emissions.

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



Le Centre National des Technologies de Production plus Propre (C.N.T.P.P)
1, rue Hamlet Said
Hussein Dey – Alger – Algeria
Telephone : + 213 (0) 21 77 83 85,
Fax : + 213 (0) 21 77 83 87
E-mail : tpp@cntppdz.com
Web : www.cntppdz.com